LEEWARD ISLANDS.

Annual Report

OF THE

Departments of Agriculture

AND

Veterinary Services

FOR THE YEAR

1951.

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PART I.

ANNUAL REPORT

OF THE

Antigua Agricultural Department

FOR THE YEAR

1951.

TABLE OF CONTENTS.

	Paragraphs.
STAFF LIST	A
SECTION 1. Review of Agricultural Production.	
A. ANTIGUA	
Weather Conditions	1.1
Sugar	1.2
Cotton	1.3
Food Production	1.4
Livestock	1.5
Statistics of Exports and Imports ...	1.6
B. BARBUDA	
Preface	1.7
Rainfall	1.7
Cotton	1.8
List of Exports	1.9
SECTION II. Agricultural Stations.	
A. CENTRAL AGRICULTURAL STATIONS.	
General	2.1
Weather conditions	2.2
Water Supplies for livestock	2.3
Buildings	2.4
Land Usage	2.5
Sugar Cane	2.6
Cotton Seed Farm	2.7
Food Crops	2.8
Seedlings Distributed	2.9
Haymaking	2.10
Cattle	2.11
Horses	2.12
Donkeys	2.13
Sheep	2.14
Goats	2.15
Pigs	2.16
Poultry	2.17
Number & Sex of Animals maintained during the year ...	2.18
Animals sold	2.19
Stud Services	2.20
Food Crops	2.21
(*a*) Experiments	
(*b*) Observation.	
B. GREENCASTLE NURSERY AND FRUIT FARM. ...	2.22
SECTION III. Sugar Cane Investigations. ...	3.1

TABLE OF CONTENTS.—(*cont'd.*)

SECTION IV. Extension and Development Work.

General	4.1
Land Settlements	4.2
Settlements, Buildings, etc.	4.3
Tractor Ploughing	4.4
Settlement Committees	4.5
Improvement of Estate Agriculture ...	4.6
Distribution of planting material ...	4.7
Soil and Water Conservation	4.8
Forest Conservation	4.9
Cotton Protection	4.10
Livestock Improvement	4.11
Plant Nurseries	4.12
Instructional	4.13
Boards, Committees, etc.	4.14

SECTION V. Marketing and Credit.

General	5.1
Credit	5.2
Cane	5.3
Cotton	5.4
Fruit, Vegetables, Seeds and Insecticides ...	5.5
Corn Factory	5.6

SECTION VI. Colonial Development and Welfare Schemes.

Scheme D. 1374	6.1
„ D. 1313 and D. 1948	6.2

SECTION VII Agricultural Legislation.

APPENDICES.

I. Rainfall in Antigua 1951

II. Rainfall in Antigua Means 1933—1951

III. Sugar Statistics 1939—1951

IV. Value of Certain Imports 1945—1948; 1949—1951

V. Principal Exports

VI. Approved Financial Estimates.

STAFF as at 31st December, 1951.

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Agricultural Assistant ... ... Vacant

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L. HODGE
C. WALSH
T. JOSEPH
J. M. BAILEY
K. PIGOTT (*Acting*)

Foreman, Greencastle Station ... ... R. E. M. WHYTE

Protection Service.

Forestry and Cotton Protection Officers ... R. V. CAMACHO

... C. K. VIEIRA.

---

*Acting Agricultural Assistant.

Section I.

REVIEW OF AGRICULTURAL PRODUCTION.

(A) ANTIGUA.

(Population approximately 44,000).

1.1. WEATHER. The average rainfall recorded from 41 stations was 59·13 inches. This was exceptionally heavy being 16·61 inches above the average (42·52 inches.) for 1933-1950. The lowest for 1951 (46·23 inches) was recorded at Gilberts in the eastern part of the island and the highest (71·65) at Wallings in the centre.

Distribution throughout the year was normal, the heaviest fall occurring during the second half of the year.

There were no tropical disturbances during the year.

Appendices I and II give details of rainfall for 1951 and means for the period 1933—1951.

Table I.

Barometer Readings.

(Inches of Mercury)

		Average.	
Month.		9 *a.m.*	3 *p.m.*
January	...	29·995	29·864
February	...	29·877	29·919
March	...	29·883	29·341
April	...	30·041	29·972
May	...	30·041	30·005
June	...	30·073	29·987
July	...	30·031	29·978
August	...	29·992	29·935
September	...	29·961	29·897
October	...	30·030	30·017
November	...	30·603	29·886
December	...	30·771	29·953

The lowest recorded reading was 29·817 at 3 p.m. on the 11t September. The highest 30·987 at 9 a.m. on 1st December.

Temperatures recorded at the Cotton Station varied from mea maxima of 86·0° F. in August and 79.0° F. in February to mea minima of 76·5° F. in August and 69·6° F. in February Average humidity at the above station varied from 83·6% in Septembe to 76·2% in February. Average hours of sunshine varied from 9·5 i August to 7·3 in September.

(The above data from the Cotton Station have been made availab for this report through the courtesy of the Cotton Officer of the Britis West Indies.)

1.2. Sugar. The Antigua Sugar Factory Limited produce 18,511 long tons grey crystal and 731,452 gallons final molasses fro 167,401 tons of cane ground.

The crop was started on the 20th February and finished on th 19th September. It is estimated that over 50,000 tons were left stand ing owing to industrial disputes. Strikes and shortage of can accounted for twelve weeks of lost time during the crop-year.

Montpelier Factory produced 396·67 long tons muscovado suga from 459 acres.

Approximations of the percentages of different varieties reaped i 1950 and 1951 are as follows:—

Table II.

Variety.	*1950.*	*1951.*
B37161	45·63	35·18
B4098	35·17	51·80
B3439	6·71	6·23
B34104	9·07	3·86
B37172	2·35	2·15
Others	1·07	0·78
	100.00	100·00

Export sugar from the Antigua Sugar Factory Limited, was sol to the Ministry of Food at £30 2. 6*d.* per ton c.i.f. with the sam reserve funds for Price Stabilisation, Rehabilitation and Social Welfar as previously.

The Antigua Sugar Factory Limited exported 16,395 tons of suga valued at $2,370,717·00 and molasses valued at $87,774·24.

Non-contracting suppliers received a total of 36*s.* 1*d.* per ton c cane and contractors, including contracting peasant settlements a total c 37*s* 10·8181*d.* per ton.

The area reaped in 1951 was approximately 9,500 acres and that to be reaped in 1952—13,000 acres.

Sugar production in 1952 was estimated at the end of 1951 at 30,000 tons from the Antigua Sugar Factory and 350 tons muscovado from Montpelier.

Table III gives some comparative statistics concerning 1951 and the previous 10—year period. More details are given in Appendix III.

Table III.

	1951.	Previous Ten Years.		
		Average.	Highest.	Lowest.
Acres reaped ...	9,960	9,851	12,669 (1940)	8,525 (1944)
Total Tons Sugar ...	18,908	20,974	31,100 (1950)	12,525 (1948)
Tons Cane per acre ...	17.44	16.84	21.3 (1950)	9.8 (1940)
Tons Cane per ton sugar ...	9.20	7.94	8.71 (1942)	7.15 (1945)
Tons Sugar per acre ...	1.897	2.12	2.73 (1946)	1.10 (1940)

1.3. Cotton. The 1950–1951 crop reaped from 4,015 acres amounted to 831,148 lbs. clean lint and 41,700 lbs. stains. Production in Barbuda was 6,230 lbs. clean lint, a substantial increase on the previous crop which amounted to only about 400 lbs. clean lint.

Table IV gives some statistics covering the period under review and previous seasons and Table V the Raw Cotton Commissioner's grading of clean lint exported to them during 1951 and the four previous seasons:—

Table IV.

	1951.	Previous 10 year period: 1941—1950.		
		Average.	Highest.	Lowest.
Acreage reaped—acres	4,015	2,265	4,826 (1940—41)	498 (1946—47)
Production clean lint—lb.	831,148	368,218	873,564 (1948—49)	73,530 (1942—43)
Production stains—lb.	41,700 (approx).	...	...	...
Total—lb.	872,848	...	...	...
Yield per acre clean lint	207 lb.	159.55	253 (1945—46)	82 (1942—43)
Average price per lb. clean lint f.o.b. ...	$0.8971	$0.51	$0 80 (1949—50)	$0.38 (1945—46)
Price paid for clean seed cotton ...	* $0.25	...	...	...
Value of lint exported ...	$761,926.06	$223,021.87	$684,725.20 (1948—49)	$35,300 (1942—43)

*Clean lint $745,246 06. Stained lint $16,680.00. (approx).

Table V.

Cotton Grading.
NUMBER OF BALES.

Season.	M.S. I. Grades.											
	G1	G2x	G2	G3x	G3	G3 ss	G4x	G4	G5x	G5	G6	Tota
1946—47		28	45	116	65			5				25
1947—48		13	80	108		495						69
1948—49	48	146	392	310	1053	193	442	279	2	5	1	2,87
1949—50	27	118	354	484	1135		92	230	7	17		2,46
1950—51	240	275	1066	329	585		49	65	7	1		2,61

SS—Short Staple.

(VH8) GRADES.

	V/S.	*S.P. 1.*	*S.P. 2.*	*S.P. 3.*	*Total.*
1950—51 ...	1	18	3	1	23

The Department continued to be the sole purchaser of seed cotton ar to exercise close supervision of all cotton going to the gins. The enti crop of certified clean lint was sold to the Raw Cotton Commissio Planting of the 1951–52 Crop commenced in September. Heavy ar continuous rains during September and October retarded cultivation the young crop. Many plants therefore got off to a bad or a late sta in those areas where weeding was impossible.

Three thousand eight hundred and fifty six (3,856) acres we registered as having been planted in 1951 to be reaped in 1952.

Twelve (12) Meetings of the Board of Management of the Antigu Cotton Growers Association and one General Meeting were held durin the year.

1.4. FOOD PRODUCTION. Locally grown vegetables and groun provisions were in good supply at the beginning of the year, but suppli diminished towards the middle of the year. In February and Marc shipments of Tomatoes were made by air to Miami (a trial shipmen and by Schooner to Trinidad. Favourable reports on the quality fruit on arrival at destination points indicate that provided marketin facilities are adequate, expansion could be attempted. Fair supplies vegetables and ground provision were available during the latter half the year.

1.5. LIVESTOCK. The following are extracts from the "Repo of the Chief Veterinary Officer, Leeward Islands Colony on Anim Health during the year 1951" reproduced here with this Officer permission:—

"(*a*) **Bovine Tuberculosis.**

"ANTIGUA.

"It is gratifying to record that the downward incidence of this 'disease continues with the gradual elimination of the foci of infection in 'working animals on the sugar estates.

"Under the Milk Production Order No. 50, there were four herds 'under supervision during the year which were subjected to tuberculin 'testing, as follows:—

"Herd No.	1	218	animals tested	—Reactor
"	2	42	" "	—No Reactors
"	3	89	" "	—1 Reactor
"	4	60	" "	—No Reactors
		409		

"Percentage of Reactors—0.49%

"(*b*) **Breeding Problems.**

"CENTRAL EXPERIMENT STATION, ANTIGUA.

"Mr. S. L. Hignett, B. Sc., M.R.C.V.S., of the Wellcome Veterinary 'Research Station, England, arrived in Antigua in February to carry out 'an investigation into breeding problems being encountered in the 'NELTHROPP" herd of cattle at the above station. This investigation 'was prompted by reason of several of the cows showing a reduced milk 'yield, temporary infertility and in some cases, the assumption of mas-'culine characteristics.

"Mr. Hignett remained in the Colony from 4th February—5th 'March. During this period, he carried out a comprehensive investigation 'which included:—

"(*a*) the analysis of service, calving and milk production "records.

"(*b*) studies on geological formation and soil types.

"(*c*) climate conditions.

"(*d*) clinical examinations of cattle.

"(*e*) collection of material for chemical and pathological studies.

"(*f*) feeding experiments.

"(*g*) grazing habits of cattle.

"(*h*) inspection of other livestock units on the Island as well as "a visit to St. Croix, United States Virgin Islands, the home of the "Nelthropp cattle, also the British Virgin Islands.

"The conclusions reached by Mr. Hignett may be summarised as 'follows:—

"(1) A problem of temporary infertility exists due largely to "conditioned phosphorous deficiency.

"(2) The existence of "adrenal virilism" which can be attribute "to a genetical factor which is activated by some stress. There are a "least three stresses to which the animals may be subjected:—

"(*a*) Lactational stress
"(*b*) the stress associated with short calving intervals.
"(*c*) a high intake of calcium and magnesium interfering wit "the utilisation of phosphorous and perhaps other nutritional factor "essential for reproduction and lactation.

"Mr. Hignett made certain recommendations, all of which are bein "carried out. These were confined mostly to management includin "nutrition; trial experiments are being carried out in the application o "potash fertiliser to hillside pastures as a possible means of lowerin "herbage calcium content; regular analysis of blood samples for inorgani "phosphorous are being carried out and material as available is being sen "to Mr. Hignett for histopathological studies.

"Mr. Hignett states that the problem presents a number of researc "projects which might well throw a great deal of light on the effect o "management and feeding on the endocrine system of cattle and hi "investigations are not yet completed.

"(*c*) **Canine Piroplasmosis.**

"The first recorded case of this disease was observed during th "year. This occurred in a Labrador puppy, 3½ months old, born o "parents imported from the U.S.A. This case is of interest not only b "reason of being an initial record of the disease in the Colony, bu "demonstrates that the incidence is present in the native dog populatio "which must possess a well established immunity.

"(*d*) **Simple Goitre.**

"Two (2) cases were observed in new born calves at the Centra "Experiment Station, Antigua. This condition is known to be asso "ciated with an iodine deficiency. A report on these is being prepare "for publication.

"**(Livestock Legislation.)**

"The following were enacted during the year:—

"ANTIGUA.

"1. S. R. & O. No. 3 of 1951—Importation of Animals (Amen "ment) Rules 1951. Making Coolidge Field a port of entry.

"2. S. R. & O. No. 8 of 1951. Importation of Animal Prohibitio "(Parrots) (Revocation) Order 1951.

(B) Barbuda.

(Population approximately 1,000)

17. No officer of the Agricultural Department is stationed here. The Department functions in an advisory capacity only.

Mr. C. E. Greenaway continues to act as Warden and the following are extracts from his Report:—

"Rainfall: The rainfall recorded at Codrington Village was "35.17 inches as compared with 30.96 for last year. The period, "February to July was the driest of the year; a total of 8.70 inches of "rain fell during the six months. It is reported to be the driest period "in Barbuda for many years.

"Food Production. The growing of more food for local use was "encouraged and some success was achieved, but a greater number of "peasants concentrated on the increased production of cotton and peanuts.

"Livestock. Stock suffered during the severe dry spell—February "to July and agricultural pursuits were at a standstill. Owing to the "lack of sufficient green grass, some animals died as a result but the "death rate is reported to be lower than in 1950. A ¾-acre plot of "Elephant Green was established at Low Pond. This will be used dur-"ing droughts to supplement our limited supply of fodder for stabled "animals.

"Stud Services. During the year 54 services were recorded for "Jack donkey "Dawson". The ram sheep is allowed to run with the "village animals as well as bull "Riley" and it is not possible to obtain "reliable figures of the number of services. There is urgent need for a "new stallion and a Jack donkey on the island.

"Cotton. Weather conditions were ideal at the time of cotton plant-"ing and 121 peasants planted an estimated 60 acres of cotton. A total of "17552 lbs. clean seed cotton was purchased at the initial price of 16 cts. "per lb. When all expenses and charges were deducted a second pay-"ment of 9.2 cents per lb. was made.

"Peanuts. Peanuts exported to Antigua are estimated at 15,000 "lbs.—most of them purchased by the Government Marketing Depot at "8 cents per lb. outright.

"Loans. The extension of the loan system similar to that in Anti-"gua was introduced in Barbuda during the year. A total of $1029.00 "was given out to assist cotton growers with their cultivation.

EXPORTS (Chiefly to Antigua.)

Commodity	*Quantity*	*Value*
		$
Cattle ...	56	3,360
Sheep ...	159	954
Mules ...	8	1,040
Horses ...	4	160
Donkeys ...	9	90
Goats ...	218	872
Charcoal ...	7,584 bags	7,000
Beans ...	6,000 lbs	840
Peanuts ...	15,000 „	3,926
Onions ...	200 „	24
Brooms ...	721 bundles	1,038
Total ...		19,304

Section 2.

AGRICULTURAL STATIONS.

A. FRIARS HILL.

2.1. General.

Up to the end of 1951, there was still no definite policy laid down for the future running of the Station, apart from the general principle that it should be self-supporting in 1953.

To this end, efforts were continued to exploit commercial crops as fully as possible. Field experimentation was limited to continuance of those plots laid down prior to the beginning of the year.

Cane and cotton were the main crops planted, but some corn, yams and sweet potatoes were also sown.

Vegetable seedlings were grown for sale, production of which was paid for from a vote on the Local Estimates.

2.2. Weather Conditions.

The year was an unusually wet one, heavy rains resulting in considerable delays in cultivation, particularly for crops such as sugar cane which are normally planted late in the year. Heavy weed growth too, coupled with labour disputes resulted in a part of the cotton crop being abandoned. On the other hand, water supplies were adequate and growth of standing crops, including ratoon canes, was good.

2.3. Water Supplies for Livestock.

As mentioned in another part of this Report, well water which was found to be high in calcium was not used for cattle. High calcium

intake was reported as being the main cause of certain physiological disturbances in these animals so that pond water was used instead. It is feared however that in periods of severe drought, well water may again have to be utilized.

2.4. Buildings.

No new buildings were erected, but some damaged by the hurricane of 1950, and by earthquakes, still await repairs.

2.5. Land Useage.

The following table shows the actual land use over the period:—

Utilization.		*Acreages.*
Cane Nurseries & Experiments	...	16.00
Cane (Commercial)	...	92.10
Food crops, Experiments	...	3.80
Food crops, (Commercial)	...	24.15
Paddocks	...	139.21
Scrub Bush Paddocks	...	166.94
Vegetable Garden	...	1.80
Fodder Crops	...	16.00
Cotton	...	50.00
Hay	...	12.00
Lands fallow	...	26.00
Cotton Station	...	34.00
Prison Garden	...	18.00
Total	...	600.00

2.6. Sugar Cane.

Owing to labour disputes, reaping continued spasmodically until well into September. Despite this, some 6 acres out of 81 were left standing. An average yield of 26 tons cane per acre was achieved which is considered fair. A total of 2,695 tons were delivered from 102 acres, ranging from 30 t.p.a. for plants to 12 t.p.a. for 2nd ratoons. The area to be harvested in 1952 includes 74 acres plant cane, 77 1st ratoons and 5 2nd ratoons, a total of 156 acres.

2.7. Cotton.

Although off to a bad start, the 1950—51 crop recovered very well, although 9.5 acres had to be abandoned owing to smothering by weeds. Leaf worm was adequately controlled by lead arsenate sprays.

Seed cotton reaped amounted to 31,663 lbs. from 40.5 acres, an average of 782 lbs. per acre.

For the 1951—52 crop, 40 acres of the new variety VH8 were established. Six strains of the variety were grown to be, if necessary, a source of seed for planting.

2.8. Food Crops.

Increased acreages of cane and cotton for economic reasons have reduced the area planted in food crops. Prædial larceny is also a deterrent to the planting of these crops.

The following were however reaped during the year:—

Crops.	*Acreage.*	*Yield.*	*Yield per acre.*
Yams ...	3.0	6,000 lb.	2,000 lb.
Corn ...	20.0	40,500 „	2,025 „
Sweet Potatoes ...	6.0	39,433 „	6,572 „
Tomatoes ...	1.5	6,250 „	4,166 „
Onions ...	0.5	1,130 „	2,260 „

2.9. Seedlings Distributed:—

Cane	...	31,900 cuttings
Elephant grass	...	20.000 „
Guatemala grass	...	2,000 „
Sweet potato	...	800,000 „
Tomato	...	906,700 seedlings
Egg plant	...	21,000 „
Cabbage	...	889.000 „
Beet	...	13,000 „
Cauliflower	...	5,000 „
Onion	...	600,000 „

The first planted of onion seedlings failed almost entirely evidently owing to faulty seed. The plots were replanted with fresh supplies of seed, but the crop as a result was late planted.

2.10. Hay Making.

Heavy rains resulted in much bedding down of the grass in the field. Cutting operations were thus difficult and there was much wastage. Ten (10) acres were dealt with, yielding five hundred and fifty-six (556) bales or about fourteen (14) tons of hay.

Owing to supplies of fresh grass being fairly plentiful during the past three years, little use has been made recently of baled hay. There are stocks still in good condition cut in previous years.

2.11. Cattle.

The herd was maintained in good condition, but certain cows which had developed undersirable characteristics such as a high tail head and shy breeding were disposed of. As a result, only three of the original ten pure Nelthropp cows now remain in the herd.

Seven $\frac{3}{4}$ bred ($\frac{3}{4}$ Red Poll, $\frac{1}{4}$ Nelthropp) animals have been milked. All are doing well and none show signs of any serious disorders. These grades are nevertheless not as robust as the pure Nelthropp.

COMPLETE LACTATION FIGURES 1950—1951.

Name of Cow.	*Period of Lactation From — To*	*No. of days in milk.*	*lb. of milk produced.*
Duchess ...	27. 8.50—27. 4.51	253	4,404½
Princess ...	5.10.50— 1. 6.51	239	3,242
Anna ...	13.10.50— 9. 7.51	269	3,735½
Cinderella ...	20.10.50— 9.12.51	415	6,920½
Celia ...	21.10.50—29. 7.51	281	4,960½
Cherry ...	22.10.50—28.10.51	371	5,720
Star ...	24.10.50—28. 4.51	205	1,982½
Deloris ...	7.11.50—29. 9.51	326	6,180½
Doris ...	25.11.50—28. 4.51	154	1,235
Ann ...	30.11.50— 8. 7.51	220	1,460

2.12. HORSES.

The two pure bred Light Draught French Canadian animals continue to do well. The mare gave birth to a magnificient mule colt and was returned to the pure bred stallion.

It is regrettable that comparatively little use is being made of this stallion.

2.13. DONKEYS.

The pure-bred American Jack "Dan Kiger" maintained excellent condition and was used for breeding both mares and janets.

A young jack was sold to St. Kitts and one to St. Lucia.

2.14. SHEEP.

The flock continues to thrive well and are in great demand both locally and in neighbouring islands.

Of the ewes lambed, 36% produced twins and 50% of the lambs were ewes.

The percentage of twin lambs shows a decline over previous years. This is because the entire flock is being up graded to Blackhead Persian which, when pure or very high grade tends to give rise to single births.

2.15. GOATS.

Although doing well, demand for milch goats is not great.

No milking has been undertaken, as this is very costly both in labour and in feed.

2.16. Pigs.

Three litters of pigs were farrowed during the year.

2.17. Poultry

This unit was disposed of during the period. (*See* 1950 report).

Number and Sex of Animals maintained during the Year.

2.18. Cattle.

Pure Bred Red Poll Bulls	...	2
$\frac{7}{8}$ „ „ „ Bull Calves	...	2
$\frac{3}{4}$ Red Poll x $\frac{1}{4}$ Senegal Bulls	...	4
$\frac{3}{4}$ Red Poll x $\frac{1}{4}$ Senegal Bull Calves	...	6
$\frac{3}{4}$ Red Poll x $\frac{1}{4}$ Senegal cows	...	9
$\frac{1}{2}$ Red Poll x $\frac{1}{2}$ Senegal cows	...	22
$\frac{3}{4}$ Red Poll x $\frac{1}{4}$ Senegal heifers	...	13
$\frac{1}{2}$ Red Poll x $\frac{1}{2}$ Senegal heifers	...	1
$\frac{3}{4}$ Red Poll x $\frac{1}{4}$ Senegal heifer calves	...	11
$\frac{1}{2}$ Red Poll x $\frac{1}{2}$ Senegal steer	...	1
		71

Horses

Pure Bred Stallion	...	1
Pure Bred Brood mares	...	2
Native Brood Mares	...	2
Half Bred Brood mares	...	2
Half Bred Filly	...	1
		8

Mules — 3	...	3

Donkeys.

Pure bred American Jack	...	1
$\frac{3}{4}$ bred American Jack	...	1
$\frac{7}{8}$ bred American Jenny	...	1
Grade American Jenny	...	1
		4

Sheep.

Pure bred rams	...	4
Pure bred ewes	...	6
Grade ewes	...	17
Grade rams	...	1
Native ewes	...	1
		29

GOATS.

British Alpine Doe	...	1
British Alpine Buck	...	1
Native Doe	...	4
Female kids	...	13
Male kids	...	1
		20

POULTRY.

Cocks—New Hampshire	...	2
Cocks—White Leghorns	...	1
Hens—New Hampshire Reds	...	7
Hens—White Leghorns	...	2
		12

PIGS.

Sows (Berkshire)	...	2
Gilts ,,	...	1
Boars ,,	...	1
		4

2.19 ANIMALS SOLD.

Cattle	...	8 cows, 1 heifer, 10 heifer calves, 3 bulls, 7 bull calves, 1 steer.
Horses	...	—
Donkeys	...	2 Jacks
Goats	...	8 ram kids, 1 wether.
Pigs	...	1 sow' 9 gilts, 9 boars.
Sheep	...	46 ewes and ewe lambs, 31 rams and ram lambs.

2.20 STUD SERVICES.

The following services were rendered:—

Stud Animals		*No. of Services*
Canadian Stallion "Cemelon de Cap Rouge"	...	16
American Jack "Dan Kiger"	...	43
Berkshire Boar	...	24

2.21. FOOD CROPS. EXPERIMENTS.

(a) *Formal Experiments.*

The following trials were reaped in 1951: —

No.		*Season.*
1 & 2	CANE with catch crops on 2 different soil types	1949—51
3.	TOMATO Spacing and Staking	1950—51
4.	TOMATO Manurial	1950—51

Cane with Catch Crops.

Objects (*a*) To assess the effect of catch cropping on the subsequent yield of cane.

(*b*) To see whether a possible reduction in yield of cane can be offset by manuring the catch crops.

Prior to the planting of the cane in 1949, maize, sweet potatoes, and tomatoes were planted as catch crops and 6-week beans as a green manure.

The tomato crop failed and onions were planted in January, 1950 in the former tomato plots shortly after the cane cuttings were put in.

Certain of the plots with catch crops were treated with 600 lbs. Sulphate of Ammonia plus 75 lbs. Superphosphate per acre (*See* '*b*' above).

Expt. 1.	Soil Type	.... Gunthorpe Clay
	Layout	.... 5 Randomized Blocks
	Spacing of Cane	.... 4' x 4'
	Effective plot size	.... 1/42 acre
	Cane planted	.... 23/12/49
	Cane reaped	.... 25/2/51
	Rainfall during life of crop	.... 71.75 ins.
	Artificials applied to cane	.... 2 cwt. S/A x 1 cwt. Super per acre 26/1/50.

Experimental Treatments:—		*Yields (tons cane per acre.)*
1.	Cane alone ...	31.28
2.	,, ,, x Additional manure ...	31.28
3.	,, plus corn ...	32.88
4.	,, ,, ,, x ,, ,, ...	29.41
5.	,, ,, onions ...	29.88
6.	,, ,, ,, x ,, ,, ...	33.28
7.	,, ,, sweet potatoes ...	30.85
8.	,, ,, ,, ,, x ,, ...	31.29
9.	,, ,, beans (G.M.) ...	30.57
10.	,, ,, ,, x ,, ...	31.23

The following yields were obtained from the catch crops:—

Crop.	*Reaped.*	*Not Manured.*	*Yields (per Acre) Manured.*
Corn (cob) ...	9/8/49	2,457 lbs.	2,484 lbs.
Sweet potatoes ...	4/10/49	2,403 ,,	2,457 ,,
Onions ...	23/5/50	2,674 ,,	2,363 ,,

Note. Yields of catch crops affected by praedial larceny.

Expt. 2.	Soil type	... Fitches Clay
	Layout	... 5 Randomised blocks
	Effective plot size	... 1/30 acre
	Spacing of cane	... $3\frac{3}{4}'$ x 4'
	Cane planted	... 16/12/49
	Cane reaped	... 20/7/51
	Rainfall during life of crop	... 72.12 ins.
	Artificials applied to cane	... 2 cwt. S/A x 1 cwt. Super per acre 24/1/50.

Experimental Treatments:—		*Yields* (*tons cane per acre*).
1.	Cane alone ...	32.81
2.	„ „ x Additional manure ...	35.48
3.	„ plus corn ...	31.25
4.	„ „ „ x „ „ ...	33.30
5.	„ „ onions	31.68
6.	„ „ „ x „ „ ...	33.70
7.	„ „ sweet potatoes ...	32.60
8.	„ „ „ „ x „ ...	29.70
9.	„ „ beans (G.M.)	31.25
10.	„ „ „ x „ ...	31.79

The following yields were obtained from the catch crops:—

Crop.	*Reaped.*	*Not Manured.*	*Yields* (*per acre*) *Manured.*
Corn (cob) ...	14/11/49	1,290 lbs.	1,664 lbs.
Sweet Potatoes ...	24/11/49	15,098 „	13,283 „
Onions ...	11/5/50	5,016 „	4,864 „

Note. Yields of catch crops affected by prædial larceny.

The following figures represent the yield (lbs. per acre) of tomatoes in relation to the different manurial treatments:—

No Potash.	*No Nitrogen.*	*1 cwt./acre Sulphate of Ammonia before transplanting.*	*1 cwt./before plus 1 cwt./acre S/A/as top dressing 4—6 weeks.*
(*a*) No phosphate ...	12,075	9,821	11,270
(*b*) 2 cwt./acre superphosphate ...	13,524	16,422	14,007
(*c*) 4 cwt./acre superphosphate ...	8,533	14,973	17,710
1 cwt./acre Muriate of Potash			
(*a*) lbs. phosphate ...	10,304	9,177	9,338
(*b*) 2 cwt./acre superphosphate ...	16,422	12,558	21,252
(*c*) 4 cwt./acre superphosphate ...	13,363	16,422	17,710
2 cwt./acre Muriate of Potash			
(*a*) No phosphate ...	9,499	8,694	11,109
(*b*) 2 cwt./acre superphosphate ...	10,948	21,091	17,388
(*c*) 4 cwt./acre superphosphate ...	14,007	18,193	20,769
	108,675	127,351	140,553

From these results:—

(*a*) Yields of tomatoes are increased by 18% when treated with 1 cwt./acre of Sulphate of Ammonia before planting. The increase reached 29% when an additional treatment of 1 cwt. per acre of S/A per acre was applied as top dressing 4—6 weeks after.

(*b*) By the addition of 2 cwt./acre of Superphosphate increase in yield reached as high as 58%. No further increase, however, was obtained from those treated with 4 cwt./acre of Superphosphate.

(*c*) Yields of tomatoes treated with 1 cwt./acre of Muriate of Potash were increased by 9%. A further increase of 2% was obtained from those treated with 2 cwt./acre of Muriate of Potash.

Results of the above experiments have not yet been analysed statistically. It is hoped, however, this may be done in time to have the additional information inserted in the final printed copies.

Tomato with Pen Manure Spacing & Staking.

XPT. 3.

Soil type	... Fitches Clay
Layout	... 3 x 3 x 3 Factorial
Effective plot size	... 1/53 acre
Tomatoes planted	... 22/11/50
Tomatoes reaped	... 9/4/51
Rainfall during life of crop	... 11.59 ins.

The following are the yields (in lbs./acre) of tomatoes obtained in ation to the different experimental treatments:—

	No Manure.	*3 tons P.M. per acre.*	*6 tons P.M. per acre.*	
No Staking.				
' x 1⅔' ...	1643	1643	2597	
' x 1⅓' ...	3922	3286	3233	27136
' x 1' ...	3551	2226	5035	
Brush Wood.				
' x 1⅔' ...	4028	3657	5088	
' x 1⅓' ...	4346	4452	4717	39379
' x 1' ...	4611	5088	3392	
Staked.				
' x 1⅔' ...	4240	5459	4982	
' x 1⅓' ...	5512	4081	4611	45050
' x 1' ...	4770	6042	5353	
	36623	35934	39008	

From the above results:—

(*a*) Staked tomatoes give an increase yield of 66% over the non-staked ones while the Brushwood gives an increase of 46%.

(*b*) Yields of tomatoes given a spacing of $4\frac{1}{2}'$ x $1'$ are increased by 20% and those with a spacing of $4\frac{1}{2}'$ x $1\frac{1}{3}'$ are increased by 15% over those given a spacing of $4\frac{1}{2}'$ x $1'$.

(*c*) There was negligible gain resulting from treatment with pen manure.

Tomato Manurial.

XPT. 4.

Soil Type	... Fitches Clay
Layout	... 3 x 3 x 3 Factorial
Effective plot size	... 1/161
Tomatoes planted	... 14/11/50
Reaping completed	... 9/4/51
Artificials applied	... 10/11/51
Rainfall during life of crop	... 12.19 ins.

(*b*) Observation Plots.

Following is a list of observation plots reaped during the year:—

Nos.		*Season.*
1.	Time of manuring of sweet potatoes on 2 different soil types ...	1950–51
2.	Time of manuring of Corn on 2 different soil types	1950–51
3.	Onions manurial ...	1950–51
4.	Onions varietal ...	1950–51

In no instance were trends sufficiently definite to warrant furth investigation.

2.22. B. Greencastle Nursery and Fruit Farm.

Land Usage as at the end of 1951.

Orchards.		*Approximate Averag*
Grafted mangoes (bearing trees)	...	4·00
„ „ (young „)	...	6·25
Citrus (bearing trees)	...	4·00
„ (young trees)	...	—
Other fruit (bearing trees)	...	·50
For orchard extension	...	2·50
Propagating Beds.		
Ornamental and economic plants	...	1·50
Multiplication Plots.		
Cane	...	10·00
Fodder	...	1·00
Food crops	...	·50
Ornamental shrubs	...	·25
Other Plots.		
Teak Trees	...	·50
Permanent cane manurial	...	1·00

Section III.

3.1. This work, sponsored by the Antigua Sugar Cane Investig tion Committee, is undertaken in collaboration with the Department Agriculture. The Department provides the senior supervising staff a to a large extent establishes and maintains nurseries of new varieties.

The bulk of the formal trials and observation plots are conducte on estates throughout the Island.

The following formal trials were reaped during the crop season of 1951:—

Experiment.	*Plants.*	*1st Ratoons.*	*2nd Ratoons.*
Variety Trials	—	4	2
Time of Planting Trials	1	1	1
Manurial (Size of dressing of S/A)	1	1	—
"High" N and P	1	1	—
Manuring with Potash	1	—	—
Treatment of Fields Damaged by Hurricane	1	—	—
	5	7	3

The following information is extracted from the report entitled "Antigua Experimental Scheme—Preliminary Study of Yield Data from Experiments Reaped in 1951 by P. E. Turner, E. R. H. Martin and L. A. Watkins." :—

Summary and Recommendations.

The hurricane of 1950 caused considerable damage to growing cane. In the case of plants, particularly of certain varieties, notably B4098, this damage was due largely to snapping off of the canes. Ratoons and very young plant canes were not seriously affected, damage being confined mainly to the stripping of leaves.

Serious labour disputes in 1951 disrupted the reaping of experiments. Eighteen only out of forty-six formal trials were weighed. No plant cane variety trial was reaped and no varietal observation plots.

Average rainfall of 48·07 ins. in 1950 was 5·55 ins. above that for the past eighteen years.

I. Varieties.

Performance of Varieties under Trial.

Eighteen varieties of the B34', B37', B40', B41', B42', B43', and B44' series were reaped only as ratoons on 4 of the 10 major soil types of the sugar cane areas.

B34 Series.

B3439 was widely grown some years ago as a standard on many soil types, but has been replaced by newer varieties. On being tried again on Bendal and York clay it has given indication of good results to date.

B34104 is no longer recommended for commercial planting.

B37 Series.

B37161 has largely been replaced as a standard by B4098, but half of the area of Ffryes clay, and a quarter of Blubber Valley Light Loam are still recommended for November planting of this variety. It is also recommended as the sole variety for early planting on Ffryes clays (1949 Report).

B37172 remains a standard on loams and clays of the Blubber Valley type only, where a quarter of the area may be planted in this variety.

B40 Series.

B4098 is now recommended for planting on a large scale on all soil types. It is the sole variety recommended for planting on seven out of eleven types on which it was tried.

B40116 has shown promise on five out of seven soil types on which it was grown, and is therefore worthy of further trial. It is however a difficult cane to handle, and wilts quickly during periods of drought but seems to recover.

B41 Series.

B41227 has shown promise only on Blubber Valley Light Loam.

B42 Series.

B4214 have given good results in five out of ten experiments on which it was tried. While not a sufficiently heavy yielder to replace present standards, it should be kept in nurseries for the present.

B42231 showed great promise up to 1950 in all three experiments in which it has been tried being equal to or better than the standard in sugar per acre in each case. In the one experiment in which it was reaped in 1951 however it dropped significantly in yield of 2nd ratoon cane and sugar.

As in the case of B40116, it is a difficult cane to handle.

B42279 has been consistently disappointing despite early vigour of growth.

B43 Series.

B4306 has been inferior to the standards on all three soil types on which it was tried.

B4362 has given consistently excellent juices in all of eight experiments in which it has been tried. Its yield of cane however, has been too low to permit it equalling yields of sugar per acre of standard varieties.

B43235 has proved consistently inferior to the standards in all eight experiments and soil types on which it has been tried.

B43337 has shown promise on Wetherill clay only and merits further trial on these soils. It was inferior to standards on eight other soil types on which it has been tried.

B43391 has been consistently inferior to standards in all of twelve experiments on nine soil types on which it has been tried.

B44 Series.

A number of varieties of this series were tested in formal trials in 1950 and 1951, none of which have given good results.

Observation plots reaped in 1950 however suggested that B4466, B44244, B44270, B44278 and B44341 are worthy of further trial.

B45 Series.

Sixteen varieties of this series were included in observation plots and four varieties in formal trials for reaping as plants in 1951. None were reaped, but observations taken during early growth resulted in nine varieties being included in formal trials for reaping as plants in 1952.

B46 Series.

Twelve varieties of this series were included in observation plots and two in formal trials for reaping as plants in 1951. None were reaped, but observations taken during early growth resulted in nine varieties being included in formal trials for reaping as plants in 1952.

B47 Series.

Nineteen varieties of this series have been included in observation plots on different soil types for reaping in 1952 as plants.

II. Time of Planting.

For the present time November is considered to be the standard time of planting, but there are indications that as more information becomes available, the standard time of planting on certain areas is likely to be advanced to an earlier date.

Fitches Clay—(wetter areas). The first ratoon experiment reaped in 1951, confirms earlier findings, and it is recommended as in 1950 that on these areas the planting date be advanced from November to as early as the middle of September, and that the variety used be B34098.

Fitches Clay—(areas of average rainfall). The plant cane experiment reaped in 1951 on an area of Fitches Clay of average rainfal indicates that it is of decided advantage to advance the planting date o B4098 from November to as early as the first week in October. September planting was not under trial.

Fitches Clay—(drier areas). No experiments were reaped on these areas in 1950 or 1951, but previous trials indicate that November should continue to be the time of planting.

Blubber Valley Light Loam—Time of Planting as might be expected had little effect on yield of second ratoon cane. Experiments show that provided B4098 is the variety used, the time of planting can be advanced from November to the middle of October to advantage.

Gunthorpe Clay—In the plant cane experiment carried out under relatively wet conditions and reaped in 1950, B4098 when planted in September yielded 5.9 more tons per acre, than when planted in October which in turn yielded 3.7 tons more cane than when planted in November Juice quality also tended to be better in earlier planted plots. Other experiments reaped on Gunthorpe clays where rainfall was lower, have not given consistent results. On these areas there would seem to be little or no advantage in planting earlier than November.

Fryes Clay—No experiments were reaped on these soils during 1950 or 1951. Experiments reaped earlier show that B37161, when planted late in September or in October, gives better returns than when planted in November.

Tomlinson Clays—No experiments with time of planting were reaped on Tomlinson clays in 1951. Previous evidence indicates that it is not safe to advance planting dates earlier than November. As on Gunthorpe clays possible correlation with rainfall should be watched in future experiments.

Lindsay Clays.—No experiments with time of planting were reaped during 1951. Previous evidence however indicates that no change from the present standard time of planting is advisable, although there is slight tendency for September planting to give better results.

Bendal Clay—Little investigation has been done with time of planting on Bendal clays, but pending further information there would seem to be advantage in planting late October rather than November, the expecting gain being small. The variety planted should be B4098.

III. Manures.

Size of Application of Nitrogen and Phosphate.

Pending further investigation applications of artificial manures should continue to be made as in recent years.

The dressings are summarised in the following table:—

TABLE I.

Soil Type	Plants		Each Ratoon	
	Sulphate of Ammonia cwts. per acre	*Superphosphate cwts. per acre	Sulphate of Ammonia cwts. per acre	Superphosphate cwts. per acre
'etherill Clays ...	2	1	2	1
itches Clays ...	2	1	3	1
lubber Valley Light Loams ...	3	1	3	1
unthorpes Clays ...	2	1	3	1
omlinson Clays ...	2	1	2	1
indsey Clays ...	2	1	3	1
tto Clays ...	2	1	3	1
endal Clays ...	3	1	3	1
lubber Valley Heavy Loams and Clays ...	3	1	3	1

*18 per cent. water-soluble P^2O^5

To ensure maximum gain in yield of plant cane, it is essential for the rtificial manures to be applied within a week of planting on Wetherill nd Fitches clays, whatever the rainfall. The artificial manures must be pplied within a week of planting on the remaining soil types unless eavy rain waterlogs the soil during this period. In such case, the artifial manures should be applied three to four weeks after planting. The rtificial manures should be applied to ratoons in the dry season before ie rains begin.

If there are good rains in April or May, an extra one cwt. of sulhate of ammonia can be applied during these months to the young lants with advantage.

Heavy Applications of Nitrogen and Phosphate.

Under conditions in which experiments with applications of Nitrogen id Phosphate much in excess of the standard treatments (*see* Table I) ave been conducted and reaped over the past three crops, it would not eem that paying gains can be obtained from the heavier applications, rticularly when sulphate of ammonia is applied at more than 5 cwts./ac. id superphosphate at more than 3 cwts/ac.

Methods of application have not given consistent results, although rther trials are indicated, as burying the manures has on occasion sulted in increased yield. The method is however rather expensive.

For the present it is therefore recommended that the standard applitions of artificials as presented be applied and the standard method of pplication be used.

Recommendations for Planting in 1950 and 1951.

TABLE II.

Recommendations for November planting.

Per Cent of Replanted Area

	1950					1951				
	B 4098	B 37161	B 37172	B 41227	B 3439	B 4098	B 37161	B 41227	B 37172	B 343
Wetherill Clay	100	...	...	...	...	100				
Fitches Clay	100	...	...	...	..	100				
B. V. L. Loam	25	25	25	25	...	25	25	25	25	
Gunthorpe Clay	100	...	...	...	...	100				
Tomlinson Clay	100	...	...	...	...	100				
Lindsey Clay	100	...	...	...	...	100				
Otto Clay	100	...	...	...	...	100				
Bendal Clay	100	...	...	...	...	100				
Ffryes Clay	50	50	...	..	...	50	50			
B. V. H. Loam	75	...	25	..	...	75		25		
York Clay	50	...	...	...	50	50				50

Nurseries.

B 43337—Wetherill clay

B 40116—Fitches clay, Gunthorpe, Tomlinson, Lindsey, Otto clay.

B 4214 —Tomlinson and Lindsey clays.

B 42231—Lindsey and Bendal clay.

B 3439 —Bendal Clay.

Recent experiments however indicate that earlier planting may be undertaken to advantage as indicated in Table III.

TABLE III.

Soil Type	Month	Variety
Fitches Clay (wetter areas) ...	Middle Sept.	B 4098
Fitches Clay (areas of average rainfall) ...	Early Oct	B 4098
Blubber Valley Light Loam ...	Middle Oct.	B 4098
Ffryes Clay ..	Late Sept. or Oct.	B 37161
*Gunthorpes Clay (wetter areas) ...	" " "	B 4098
Bendal Clay ...	Late Oct.	B 4098

*Based on results of one experiment only.

Section 4.

Extension and Development Work.

4.1. General. No changes in the general organisation of this Section were made during the year. The work of the Section continued to increase as more small cultivators on private estates were accorded many of the facilities provided for the land settlements.

4.2. Land Settlements. Given hereunder is a list of all the "Settlement" areas with which the Department of Agriculture and the Land Settlement and Development Board are concerned:—

	Settlements.	*Total Area (Acres).*	*Total Arable Acreage Occupied.*	*No. of Allotments.*	*Principal Feeder Village or Town.*
1.	Clare Hall	226	226	126	Clare Hall, St. John's, St Johnston's Village
2.	Skerrets	100	61	19	St. Johnston's Village
3.	Sawcolts	233	138	70	Sawcolts, Sweetes
4.	Wallings	430	134	39	Wallings, Sawcolts
5.	Piccadilly	3,000 (approx.)	853	499	English Harbour, Liberta, Falmouth, Bethesda
6.	Matthews	729	445	165	All Saints, Sweetes, Buckleys
7.	Jonas	261	147	108	Freemans, All Saints, Pares
8.	Greencastle (1)	544	491	99	Grays Farm, Grays Hill, Hamilton, St. John's
9.	The Folly	22	20	22	Sweetes, The Folly
10.	Mannings	250	86	51	Freetown, Newfield
11.	Sherriffs	240	—	—	
12.	Indian Town	22	—	—	
13.	Coconut Hall	257	160	109	Parham, Seatons
14.	Southern Settlements	1,712	462	269	Old Road, Urlings
15.	Northern Settlements	518	363	283	Cedar Grove, St. John's
16. 17.	{Rooms {Comfort Hall	851	357	298	Willikies, Seatons
18.	Brecknocks	Unsurveyed	51	40	Sawcolts, Hamilton
19.	Belvidere, Greencastle (2) etc.	1,635	822	432	Grays Hill, Grays Farm St. John's
20.	Orange Valley	707	221	131	Crab Hill, Johnson's Point, Bolans
21.	Glanvilles	256	182	124	Seatons
22.	Matthews Extension	35	30	29	Sweetes.
	Total	12,028	5,249	2,913	

4.3. Settlements, Buildings, etc.

Repairs to all settlements buildings damaged by hurricanes in 1950 were completed in 1951. Approximately $20,000.00 was spent on this during the year.

Minor repairs were done to numerous settlement roads and barricades.

4.4. Tractor Ploughing on Settlements.

Three hundred and sixty-two (362) acres were close ploughed. Of this area, three hundred and thirty-two (332) acres were also banked.

4.5. Settlement Committee.

These continued to function in an advisory capacity at Coconut Hall, Southern Settlements, Rooms, Comfort Hall and Glanvilles, Belvidere and Greencastle, Jonas and Matthews.

Eight (8) General and twenty-three (23) Committee Meetings were held during the year.

4.6. Improvement of Estate Agriculture.

The normal liaison between the Department of Agriculture and most estates through the Sugar Cane Investigation Committee, the Antigua Cotton Growers Association and the Agricultural and Commercial Society was maintained.

The scheme for the Rehabilitation of Estate Agriculture was non-operative during the year. No applications were received and no issues made.

Repayments during the year totalled $12067.35 and since the commencement of the scheme $63467.03.

4.7. Distribution of Planting Material.

The following is a list of recorded sales and for free distribution of plants and planting material from all departmental stations—*i.e.* Central Experiment Station, Greencastle Fruit Farm and Nursery, and District Stations:—

Cane Cuttings (recommended varieties)	....	211,450
Onion Seedlings	....	640,500
Tomato "	....	936,725
Cabbage "	....	889,200
Cauliflower	....	4,775
Beet	....	13,280
Egg Plant	....	21,020
Sweet Potato cuttings	....	830,000
Elephant Grass "	....	30,000
Guatemala "	....	2,000
Grafted fruit trees (Mangoes, Citrus and Avocada Pears)	....	251
Ornamental Trees and Shrubs	....	880

4.8. Soil and Water Conservation.

A total of approximately three hundred and forty-five (345) acres were serviced by the Department Soil Conservation Unit. Thirty-six (36) acres at the Central Agricultural Station, fifty (50) acres on estates and two hundred and forty-nine (249) on small holdings. Most of the work consisted of the laying down of earth bunds at 6' vertical intervals establishing close planting of Vetevier or Guinea Grass on these bunds and encouraging the cultivators to make their ordinary cultivation banks as far as possible parallel to these bunds. The greater part of the work on small holdings was paid for by Departmental funds.

The district instructors continued to supervise the maintenance of work already done on Government Land Settlements and to carry out some new work.

4.9. Forest Conservation.

A forestry Protection service was maintained during the year. This was staffed by two Protection Officers (Forestry as well as Cotton Protection) and part-time rangers as required.

There were forty-seven (47) convictions during the year for breaches of the Forestry Regulations. Fines varying from $2.40 to $5.00 were imposed.

4.10. Cotton Protection.

Two Protection Officers (*see* Forestry above) part-time rangers and all field officers assist in this work. A close season was maintained from 1st June to 31st August.

There were 115 convictions for breaches of the Cotton Protection Ordinance as against 85 in 1950 and 27 in 1949. Fines ranged from $1.20 to $12.00. In 1950 fines ranged from 72c. to $5.00.

4.11. Livestock Improvement.

Red Poll and Senegal bulls were kept at stud at Cades Bay, Piccadilly, Royals and Orange Valley. Three bulls were sold on easy terms to selected peasants at Coconut Hall, Belvidere and Ottos. The purchasers were required to maintain the animals for breeding purposes in these districts.

Large Black boars were maintained at Cades Bay and Rooms and a Duroc-Jeray at Piccadilly. A Black Head Persian ram was kept at Cades Bay. The above are additional to those kept at the Central Agricultural Station.

4·12. Plant Nurseries.

In addition to nurseries at the Central Agricultural Station and Greencastle, cane nurseries were maintained at Cades Bay, Orange Valley and Matthews and a nursery for the provision of vegetable seedlings at Piccadilly.

4.13. Instructional.

A Mobile Cinema Unit owned by the Department gave 30 shows during the year; at each show, one or more films of agricultural interest were shown.

4.14. Boards, Committees, etc.

During the year the Agricultural Superintendent served on the following:—

As Chairman of the Land Settlement and Development Board.
" " " " Sugar Cess Rehabilitation Fund Committee.
" Secretary of the Antigua Agricultural and Commercial Society.
" " " " Estate Rehabilitation Committee.
" " —Treasurer of the Antigua Cotton Growers' Association.
" a member of the Sugar Cane Investigation Committee.

During the year, the Assistant Agricultural Superintendent served as Secretary-Treasurer of the Sugar Cane Investigation Committee and as Secretary of the Sugar Cess Rehabilitation Fund Committee.

Section 5.

Marketing and Credit.

5.1. General. The following table indicates the total volume of business done by this section and the large increases which have taken place in recent years:—

Marketing Organisation: Financial Summary.
1948—1951.
($'000s)

Activity.	*1948.*	*1949.*	*1950.*	*1951.*
Loans issued under Head VII ...	24	54	116	155
Loans and interest recovered including C.D.W. Schemes ...	14	34	70	109
Cane Payments (Head XXVII 2.) ...	96	163	240	254
Cotton Payments (Head XXVII 1.) ...	15	227	510	574
Government Marketing Depot turnover ...	6	15	12	12
Packing Materials store purchased ...	—	—	5	4
Marketing Commission and fees received ...	4	20	33	37
Rents collected ...	5	7	12	10

In March, 1951, a Marketing Office Enquiry Committee was appointed to enquire into the whole accounting and office procedure of the Marketing Section. The Committee was composed of Mr. R. B. Allnutt, Director of Agriculture, Mr. R. L. Aiton and Mr. D. A. Percival, Assistant Economic Adviser to the Comptroller. In June, 1951 the Committee submitted its report and suggested recommendations for the improvement of the organisation of the Marketing Section. Government is taking steps to implement the recommendations of the Committee.

5.2. Credit. The Section continued to provide credit facilities for the small farmer under the same terms and conditions as in the previous year. The service during 1951 was extended to include all peasants, the various landlords concerned having first given an undertaking to collect loans on behalf of Government. The extension of the credit service appears to have been effected with less difficulty than anticipated and the Department is indebted to the landlords for their cooperation.

During the year, a total of $154,707·48 was issued on 4,645 occasions as against $120,922.00 on 3,980 occasions in 1950.

Interest at half cent per dollar per month, collected during the year was $4,198.42 as against $3,057 in 1950.

During the year the issue of medium and long term loans was discontinued temporarily.

5.3. Cane. Twenty four thousand, eight hundred and seventy-five (24,875) tons were handled as compared with twenty-eight thousand eight hundred and sixteen (28,816) in 1950 and nineteen thousand and eleven (19,011) in 1949. The distribution between settlements and the gross proceeds are given below:—

Settlements.	*Tonnage.*	*Gross Proceeds.*
Clare Hall ...	1,099·0817	10,892·54
Piccadilly ...	342·8135	2,962·32
Cades Bay ...	276·8750	2,655·77
Coconut Hall ...	614·0381	5,906·44
Mill Hill and Follies ...	436·8281	4,133·79
Matthews ...	2,763·2618	29,670·23
Sawcolts ...	792,0562	7,117·51
Golden Grove ...	494·1654	4,294·59
Belvidere ...	5,997·3979	64,329·94
Greencastle ...	4,707·8864	50,905·11
Rooms and Comfort Hall ...	986·4296	9,061·20
Orange Valley ...	1,658·0370	17,466·13
Marble Hill ...	1,272·8959	12,867·65
Jonas ...	1,880·4551	19,630·13
Mannings ...	333·7500	2,342·54
Glanville ...	1,219·2000	10,082·00
	24,875·1717	254,317·89

5.3. A revenue and expenditure statement is given below:—

REVENUE. To	$	EXPENDITURE. By	$
1950 Cane Bonus	49,052.63	1950 Bonus & 1951 Cane Payments	239,969.97
Sale of Peasants Canes — 1951 Crop (B)	205,265.18	Expenses (A)	14,239.91
Balance (Loss) (C)	163.23	Deductions by the Antigua Distillery Ltd.	271.16
	254,481.04		254,481.04

STATEMENT A.

	$
Supervision, Packing, etc.	4,822.32
Watching Canes at Marble Hill Siding	89.40
Building & Repairing Steps	152.34
Checking weights at A.S.F.	736.93
Weighing Canes at Matthews	87.46
Transportation	911.28
Incidentals	420.89
Railway Cess	657.34
Repairing Scale at Matthews	4.00
Marketing Commission	6,357.95
	14,239.91

STATEMENT B.

Exceeds Treasury Total by $271.16 being amount deducted by the Antigua Distillery Ltd. from the gross proceeds of canes before payment was made to this Office.

STATEMENT C.

Includes 1950 Vouchers paid in 1951.

5.4. Cotton.

The Marketing Officer was again the sole purchaser of cotton. Peasant growers supplied 80% of the crop. Large growers continued to have their cotton ginned independently but all seed cotton going to the gins was inspected. A revenue and expenditure statement is given below:—

REVENUE. To	$	EXPENDITURE. By	$
Sale of Clean Lint (A)	541,869.16	Purchase Peasants' Cotton	484,728.79
„ „ Stained Lint	12,761.20	Expenses (c)	90,130.92
„ „ Cotton Seed	16,226.63	Insurance & Expenses on Shipment of Stained Lint to Beal	1,636.00
„ „ „ „ meal	582.50		
„ „ Jute Bags	2,092.28		
Amount paid into Revenue by Beal to cover Insurance and Expenses on Shipment of Stained Lint	1,636.00		
Balance	1,327.94		
	576,495.71		576,495.71

STATEMENT A.

Includes Grading Fee of $2,530.41 deducted in England and therefore not appearing in the Treasury Books.

STATEMENT B.

Includes (i) Unpaid Vouchers at the end of 1950 paid in 1951.

(ii) Value of Cotton Seed from 1951 Crop on hand retained for making Cotton Seed Meal.

STATEMENT C.

	$
Handling Charges	7,692.96
Shipping Expenses	1,369.74
Insurance	2,678.69
Transportation	1,341.20
Export Duty & Cess	12,075.30
Ginning & Baling	30,318.92
Bags & Twine	3,029.40
Sundries	395.12
Grading Fee	2,530.41
Marketing Commission	28,699.18
	90,130.92

5.5. Marketing Depot.

Fruit and vegetables, including amounts purchased from Barbuda, were sold throughout the year. Retailing of vegetable seeds and fertilizers was continued. The following statements indicate the extent of the business done:—

Fruit and Vegetables.

REVENUE. To	$	EXPENDITURE. By	$
Sale of fruit and Vegetables (A)	9,434.92	Purchase of Fruit and Vegetables	8,234.08
Stock in hand at 31/12/51	—	Expenses (B)	634.80
		Stock in hand at 1/1/51	—
		Balance (Profit)	566.04
	9,434.92		9,434.92

STATEMENT A.

Differs from Treasury total by $13.44. Amount short paid into Treasury in 1949, but brought to account in 1951 (*See* Treasury Receipt No. 98526 of 7/2/51).

STATEMENT B.

	$
Wages	238.81
Freight etc.	204.21
Packing Materials	149.99
Porterage	4.68
Incidentals	37.11
	634.80

Seed.

REVENUE. To	$	EXPENDITURE. By	$
Sale of Seeds (A)	3,006.62	Purchase of Seeds	2,071.66
Stock on Hand at 31/12/51 (*See* attached)	264.15	Expenses (B)	340.64
		Stock on Hand at 1/1/51	78.62
		Balance (Profit)	779.85
	3,270.77		3,270.77

STATEMENT A.

Differs from Treasury total by $98.70 Amount short paid to Treasury in 1949 but brought to account in 1951 (*vide* Treasury Receipt No. 98526 of 7/2/51).

STATEMENT B.

	$
Wages	292.55
Transportation	29.37
Incidentals	18.72
	340.64

VEGETABLE SEEDS.

Stock in Hand as at 31/12/51.

				$			$
Beets	...	5	lb @	3.14	per	lb.	15.70
String Beans	...	13	„ „	1.25	„	„	16.25
Cabbage	...	1	„ „	6.07	„	„	6.07
Cauliflower	...	2	„ „	22.00	„	„	44.00
Cucumber	...	1¼	„ „	5.13	„	„	6.41
Egg Plant	...	1	„ „	14.28	„	„	14.28
Khol Rabi	...	¾	„ „	5.90	„	„	4.43
Lettuce	...	7	„ „	6.24	„	„	43.68
Onions	...	3¾	„ „	7.06	„	„	26.48
Pepper	...	½	„ „	11.92	„	„	5.96
Parsley	...	¼	„ „	3.49	„	„	.87
Radish	...	¾	„ „	2.54	„	„	1.91
Squash	...	1	„ „	3.25	„	„	3.25
Turnip	...	1	„ „	2.45	„	„	2.45
Tomato	...	6¾	„ „	10.73	„	„	72.43
							264.15

Insecticides & Fertilizers.

REVENUE.

To

	$
Sale of Insecticides (A)	7,547.16
Stock on Hand at 31/12/51 (*see* attached)	3,403.26
Balance (Loss) (C)	1,687.73
	12,638.15

EXPENTITURE.

By

	$
Purchase of Insecticides etc.	449.34
Expenses (B)	254.69
Stock on Hand at 1/1/51	11,934.12
	12,638.15

STATEMENT A.

Differs from Treasury total by $41.42. Amount short paid into Treasury in 1949 but brought to account in 1951 (*Vide* Treasury Receipt No. 98526 of 7/2/51).

STATEMENT C.

Apparent Loss is due to the fact that $2,719.80 of Fertilizers issued to peasants in 1951 were not paid for until 1952.

STATEMENT B.

	$
Wages	149.17
Freight	56.14
Transportation	31.24
Porterage	4.68
Incidentals	13.46
	254.69

INSECTICIDES & FERTILIZERS.

Stock in Hand as at 31.12.51.

					$
Lead Arsenate	...	2988 lbs.	@ 35c.	per lb.	1,045.80
Caroga	...	1274 „	„ 25c.	„ „	318.50
Benzole	...	83 „	„ $1.5043	„ gal	124.86
MB 320	...	18 „ 10 oz.	„ 1.914	„ lb	35.65
Cryolite	...	23 „ „ „	„ 21.02c.	„ „	4.83
Ammophos	...	19 bags	„ „ 4.765	„ bag	90.54
Sodium Fluochloride	...	225 lbs.	„ 14.52c.	„ lb	32.67
Sulphate Ammonia	...	107 bags	„ 11.63	„ bag	1,244.41
Superphosphate	...	44 „	„ 11.50	„ „	506.00
					3,403.26

5.6. Corn Factory.

The machinery was kept in serviceable condition throughout the year. Small quantities of corn were shelled and cracked for the Central Experiment Station and private individuals. A statement of revenue and expenditure is reproduced below:—

REVENUE.		EXPENDITURE.	
To		By	
	$		$
Sale of Corn etc.	673.87	Expenses (Upkeep Corn Factory) (A)	215.37
		Balance (Profit)	458.50
	673.87		673.87

STATEMENT A.

	$
Wages	101.83
Fuels, Oils etc	194.81
Electric Current	4.80
Incidentals	3.93
	215.37

Section 6

Colonial Development and Welfare Schemes.

6.1. Scheme 1374. Makes provision by a grant of $229,200 f six years (up to 31st March, 1956) for the maintenance of Services Small Farmers, formerly provided under Scheme 465B.

Expenditure during 1951 amounted to $40,853.00 and since t inception of the scheme (April 1st, 1950) $66,518.00.

6.2. Schemes D1313 and 1948. Grants under these schem which made provision for the operation of the Central Experimen Station were expended by 1950. During the current year under revi an application was made for a further grant to cover the deficit, if any, the operation of the Central Experimental Station for the years 1951 a 1952. Advances were made by the local Government to cover the c of operation until revenue was realised from Commercial production.

Section 7

Agricultural legislation.

The following legislation affecting Agriculture was enacted duri 1951

7.1 (i) Ordinance No. 2 1951. The Small Farmers Cultivati and Haulage Service Ordinance.

This project has been put into operation by the use of funds accr ing to peasants from the Sugar Cess Rehabilitation Fund.

(ii) S. R. & O. No. 5, 1951. The Plant Protection Regulatio 1951.

(iii) Ephemeral Orders covering the cotton close season.

E. R. H. Martin,
Agricultural Superintendent.

APPENDIX I.

RAINFALL IN ANTIGUA—1951.

No.	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Totals
1.	Antigua Sugar Factory ...	3.77	2.79	1.49	3.98	9.87	2.52	5.42	8.93	14.23	6.87	4.98	6.25	71.10
2.	Bettys Hope ...	3.25	2.14	.47	2.40	6.45	2.41	2.93	4.67	11.04	5.28	4.22	7.51	52.77
3.	Blackmans ...	3.31	2.12	.86	2.76	7.00	1.63	4.40	6.85	11.37	5.10	5.08	5.72	56.20
4.	Blakes ...	4.49	2.06	.83	.92	8.42	4.96	3.30	5.87	9.25	3.87	2.58	5.26	51.81
5.	Blubber Valley ...	5.08	3.23	1.82	2.55	10.99	2.49	2.64	7.08	9.27	6.85	3.53	6.87	62.40
6.	Burkes ...	5.89	2.63	.93	1.62	13.67	3.82	3.19	8.24	10.16	5.77	4.36	6.14	66.42
7.	Cassada Garden ...	3.48	1.94	.93	2.43	9.77	1.87	3.27	9.84	9.96	3.85	4.24	5.98	57.56
8.	Cedar Valley ...	2.99	1.80	1.15	2.49	9.92	2.20	3.63	10.08	10.48	3.41	3.31	6.50	57.91
9.	The Cotton ...	3.90	2.00	.57	2.52	6.62	1.13	4.38	6.39	9.18	4.41	2.86	6.03	49.99
10.	Comfort Hall ...	2.83	2.23	.76	2.10	7.27	2.65	3.52	8.32	10.13	5.41	3.09	6.84	55.15
11.	Collins ...	3.08	2.24	1.03	2.34	6.75	1.62	2.94	7.59	8.60	4.33	2.88	5.66	49.06
12.	Creek Side ...	3.43	3.75	1.69	3.45	12.29	2.88	4.51	9.43	8.63	6.60	6.22	7.74	70.62
13.	Delaps ...	3.90	1.84	.85	1.03	9.59	2.69	2.29	7.49	10.42	4.68	2.98	6.16	53.92
14.	Donovans ...	2.68	1.85	.73	3.02	7.23	1.53	4.39	7.10	10.66	4.88	3.57	4.77	52.41
15.	Diamonds ...	4.38	3.53	1.06	1.97	10.02	3.47	3.57	7.26	12.46	6.48	3.20	7.33	64.73
16.	Five Islands ...	3.50	1.65	1.72	3.07	10.85	2.74	3.21	8.81	8.04	5.11	3.51	6.94	59.15
17.	Fitches Creek ...	3.49	2.46	.99	3.55	10.33	2.07	5.11	9.12	13.71	5.33	5.09	7.03	68.28
18.	Friars Hill ...	3.60	1.88	1.09	2.16	10.54	2.74	3.28	9.18	12.06	3.90	3.67	7.36	61.46
19.	Ffryes ...	3.80	2.06	1.09	1.79	8.24	3.62	2.78	8.36	9.06	4.58	2.50	6.96	54.84
20.	Gaynors ...	2.29	1.92	1.10	.82	9.41	2.56	2.19	6.48	9.96	5.58	1.72	5.31	49.34
21.	Gilberts ...	3.26	2.25	.37	2.27	6.17	1.38	2.57	5.22	9.21	3.98	3.03	6.52	46.23
22.	Greencastle ...	4.72	2.51	2.21	2.99	13.71	2.82	4.11	10.06	9.24	5.55	4.91	7.84	70.67
23.	Langfords ...	3.68	2.11	1.53	3.28	8.19	2.72	4.57	9.78	10.10	4.12	3.24	9.45	62.77
24.	Long Lane ...	3.23	2.00	1.01	1.14	7.50	2.70	2.78	7.90	9.76	4.34	1.68	5.54	49.58
25.	Montpelier ...	4.45	2.33	.95	1.64	7·65	4.89	2.90	7.95	12.19	4.07	2.17	6.02	57.21
26.	Morris Loobys ...	4.67	1.77	1.02	1.07	10.82	4.66	3.30	5.98	9.77	4.64	3.15	5.18	56.03
27.	Cotton Station ...	3.05	1.69	.99	3.49	10.03	1.92	3.17	8.90	10.39	3.66	2.66	8.39	57.39
	Carried forward ...	100.20	60.78	29.24	61.80	249.35	72.69	94.35	212.88	279.33	132.65	94.43	177.30	1565.00

RAINFALL IN ANTIGUA—1951.

No.	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Totals.
	Brought forward ...	100.20	60.78	29.24	61.80	249.35	72.69	94.35	212.88	279.33	132.65	94.43	177.30	1565.00
28.	New Division ...	4.13	3.25	1.61	3.61	11.95	2.46	4.62	7.41	8.63	5.54	5.27	7.90	66.38
29.	North Sound ...	3.88	1.92	.71	3.32	10.31	2.50	3 38	7.15	11.29	5.20	4.40	6.24	60.30
30.	Pares & Cockranes ...	3.10	2.60	.98	2.21	8.26	2.82	2.89	7.52	10.98	5.59	3 47	6.46	56.88
31.	Parham New Works ...	4.20	2.30	.96	2.70	8.50	2.05	2 72	7.22	13.45	5 78	2.75	6.95	59.58
32.	Parham Lodge ...	3.80	2.05	.69	2.73	7.31	1.29	4.05	6.92	8.98	4.35	2.20	4.68	49.05
33.	Paynters ...	2.72	2.84	1.47	2.90	9.58	2.14	4.84	8.13	11.87	5.11	4.44	4.84	60.88
34.	Piccadilly ...	6.35	2.48	.83	1.69	12.36	5.51	3.28	7.39	11.37	6.17	3.08	5.71	66.22
35.	Thibous ...	2.82	1.36	1.20	3.32	7 27	2.65	3.49	11.61	11.04	4.38	4.67	6.28	60.09
36.	Vernons ...	3.96	1.91	1.23	3.01	9.62	2.35	3.35	8.43	12.62	5.83	4.12	6.38	62.81
37.	Willis Freemans ...	4.34	1.99	.95	1.83	11.49	4.65	1.57	7.68	9.92	6.12	4.32	5.79	60.65
38.	Wallings Station ...	5.73	4.18	1.37	2.20	12.99	4.65	4.84	6.75	12.06	7.08	3.9	5.26	71.65
39.	Wallings Dam ...	5 53	4.02	1.34	2.25	8.11	4.27	4.44	7.01	12.15	7.14	3.99	5.49	65.74
40.	Yeptons ...	2.65	1.36	.76	2.70	11.39	3.76	3.82	10.01	8.73	4.47	3.18	6.50	59.33
41.	Yorks ...	3.78	2.96	2.10	2.86	9.38	2.61	3.63	7.05	8.47	5.39	4.22	7.41	59.86
	Totals (41 Stations) ...	157.19	96.00	45.44	99.13	387.87	116.40	145.27	323.16	430.89	211.40	148.48	263.19	2424.42
	Means (41 Stations) ...	3.83	2.34	1.11	2.42	9.46	2.84	3.54	7.88	10.51	5.16	3.62	6.42	59.13
	Means 1933—1951 ...	3.05	1.54	1.39	2.08	4.00	3.28	3.31	4.79	5.60	5.42	5.65	3.28	43.39

APPENDIX II.

RAINFALL IN ANTIGUA.

The average Rainfall (Annual) for the 60 years previous to 1933 was 43.47 inches.
Means 1933—1951.

No. of Stations.	Year.	Jan.	Feb.	March.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
59	1933	1.98	.92	1.07	2.62	4.69	2.60	5.28	1.87	8.40	3.04	6.18	2.85	41.50
60	1934	1.56	.64	2.05	.61	1.11	3.51	2.81	7.42	3.90	1.62	10.74	5.89	41.86
60	1935	1.33	1.15	.96	1.96	2.98	2.41	4.36	3.24	4.35	8.70	5.65	2.12	38.31
60	1936	1.65	1.26	.93	2.84	8.44	3.61	5.92	5.36	10.15	8.14	4.41	7.23	59.94
60	1937	8.54	3.07	.79	4.39	1.22	1.03	3.86	5.15	4.99	3.47	8.13	2.64	48.28
58	1938	2.07	.81	1.20	.61	1.06	11.58	3.10	6.39	3.00	3.95	8.41	2.67	44.75
59	1939	1.64	1.11	1.72	.25	.91	1.06	3.00	1.29	1.86	9.42	5.52	1.92	29.70
66	1940	3.41	3.09	2.13	2.41	4.31	2.71	2.15	3.04	3.04	2.41	6.79	1.88	37.37
66	1941	3.10	.71	1.63	2.10	12.77	3.49	3.02	4.07	5.25	2.95	8.06	2.22	49.37
56	1942	5.61	1.76	.55	4.43	2.62	4.45	3.39	6.57	2.67	4.53	10.56	2.81	49.95
54	1943	3.99	1.91	1.63	1.01	7.70	5.44	1.96	6.84	3.40	8.69	4.17	2.34	49.08
54	1944	2.99	1.32	.39	.55	2.83	3.84	6.46	4.53	4.40	5.69	3.48	1.55	37.13
55	1945	1.40	2.44	1.44	1.59	3.97	2.42	3.38	4.62	6.57	7.59	1.88	3.60	40.90
51	1946	2.12	1.09	1.93	4.53	3.21	1.97	1.32	3.76	5.29	2.32	4.68	4.89	37.11
49	1947	3.62	.50	.61	.94	3.77	1.50	2.57	1.68	7.42	4.46	1.00	.76	28.84
48	1948	2.44	.93	1.51	.90	2.55	3.98	1.86	2.28	4.64	7.02	5.28	3.92	36.41
48	1949	1.73	2.40	4.42	3.11	1.45	3.09	3.46	3.37	12.31	6.28	3.35	3.78	49.03
40	1950	5.89	2.58	1.30	2.25	1.74	1.56	1.63	11.23	4.56	7.38	5.07	2.88	48.07
41	1951	3.83	2.34	1.11	2.42	9.46	2.84	3.54	7.88	10.51	5.16	3.62	6.42	59.13
Monthly means 1933—1951 ...		3.05	1.54	1.39	2.08	4.00	3.28	3.31	4.79	5.60	5.42	5.65	3.28	43.39

APPENDIX III.

Sugar Production—Antigua.

Year.	Acres Reaped.	Tons (Long) Grey Crystals.	Tons (Long) Muscovado.	Average yield Tons Cane per acre.	Tons Cane per ton Sugar.	Tons Sugar per acre.
1941	11,374	17,584	166	12·9	8·23	1·55
1942	11,703	21,979	193	16·5	8·71	1·89
1943	9,187	21,867	208	18·7	7·79	2·39
1944	8,525	16,279	125	14·3	7·47	1·92
1945	8,823	20,663	72	16·8	7·15	2·35
1946	9,560	26,024	122	20·7	7·57	2·73
1947	10,267	22,746	100	17·5	7·87	2·22
1948	8,782	12,174	—	11·5	8·32	1·38
1949	8,494	18,263	75	18·2	8·43	2·15
1950	11,800	30,681	422	21·3	7·88	2·64
1951	9,960	18,511	397	17·4	9·20	1·90

APPENDIX IV.

Value of Imports of Certain Commodities into Antigua in Hundred of Pounds Sterling (£ 00).

Foodstuffs for Human Consumption.		*1945—48 Average.*	*1949.*	*1950.*	*1951.*
Flour	...	890	812	895	740
Pulses	...	6	8	3	2
Rice	...	222	297	271	334
Cornmeal (Maize)	...	264	258	342	432
Bread and Biscuits	...	34	70	18	121
Butter and Substitutes	...	140	355	144	177
Lard and Substitutes	...	84	162	43	128
Edible Oils	...	149	134	261	58
Preserved Milk	...	32	58	45	53
Cheese	...	32	70	65	45
Preserved Meat	...	202	121	231	147
Preserved Fish	...	305	377	312	383
Fruit and Vegetables	...	133	46	44	115
Coffee	...	12	17	17	31
Tea	...	10	27	—	7
Cocoa	...	18	29	31	62
Sugar	...	70	7	2	2
Total		2,603	2,848	2,724	2,837

APPENDIX V.

PRINCIPAL EXPORTS FROM ANTIGUA IN HUNDREDS OF POUNDS STERLING (£ 00).

Commodity.	*1945—48 Average.*	*1949.*	1950.	*1951.*
Sugar ...	3765	4223	9585	5077
Molasses ...	107	—	625	198
Rum ...	87	36	8	30
Cotton Lint ...	168	1537	1346	1539
Cotton Seed, Oil and Meal ...	—	34	33	31
Limes and Lime Products ...	—	8	—	1
Tomatoes ...	1	1	—	1
Coconut Products ...	—	—	—	—
Livestock ...	10	2	1	4
Hides and Skins ...	—	5	1	7
Other agricultural products* ...	—	16	—	52
	4138	5862	11599	6940

*Includes forest products, fruits, vegetables and ground provisions.

PART II.

ANNUAL REPORT

OF THE

St. Kitts-Nevis-Anguilla

Agricultural Department

FOR THE YEAR

1951.

TABLE OF CONTENTS.

	Page.
Staff	
Weather Conditions	1
Agricultural Industries	3
Sugar	3
Cotton	6
Coconuts	9
Food Production	9
Livestock	10
Investigational Work	10
Sugar Cane	10
Cotton	14
Processing Plants	15
Extension Work	16
Marketing and Credit Facilities	16
Soil and Forest Conservation	17
Land Settlement	17
Stud Animals	18
Goofahs	18
Aloes	19
Lespedeza	19
Distribution of Planting Material	19
Development and Welfare Schemes	20
Bayfords Farm	21
Appendix I —Statement of Receipts & Expenditure Marketing Peasants' Canes, St. Kitts ...	30
„ II —Statement of Receipts & Expenditure Marketing Peasants' Cotton, Nevis ...	32
„ III —Statement of Receipts & Expenditure Marketing Peasants' Cotton, (Stains) ...	33
„ IV —Statement of Receipts & Expenditure Marketing Peasants' canes, Nevis ...	33
„ V —Exports and Imports ...	34
„ VI —Meteorological Report for 1951 ...	36
„ VII—St. Kitts Rainfall—Jan. to Dec., 1951 ...	37

DEPARTMENT OF AGRICULTURE.

STAFF.

St. Kitts.

Agricultural Superintendent	...	R. E. KELSICK
Agricultural Assistant	...	V. E. OSBORNE
do do.	...	*vacant*
Manager, Bayfords Farm	...	G. L. BELLOT
Land Officer & Cotton Inspector	...	C. L. WOODS
Senior Agricultural Instructor	...	L. P. EVELYN
Agricultural Instructor	...	R. H. EDWARDS
do. do.	...	A. H. ADAMS
Stockman, Bayfords Farm	...	J. ROBINSON
Junior Clerk	...	C. HALBERT
Foreman, Experimental Station	...	E. BARNES
Messenger	...	B. LAWS

Nevis.

Agricultural Officer	...	S. H. ABBOTT
Marketing Officer	...	S. L. HENRY
Senior Marketing Assistant	...	F. B. ABBOTT
Marketing Assistant	...	J. BARRETT
do. do.	...	C. HOBSON
do. do.	...	E. HOWELL (*Miss*)
Land Officer	...	C. W. WILSON
Cotton Inspector	...	R. B. CLIFTON
Senior Agricultural Instructor	...	R. A. HULL
Agricultural Instructor	...	J. HANLEY
do. do.	...	E. NISBETT
do. do.	...	J. CLARKE
do. do.	...	*vacant*
Forest Guard	...	I. E. WATLEY
Junior Clerk	...	J. RIVIERE (*Mrs.*)
Foreman, Experimental Station	...	J. HOWELL
Messenger	...	W. RICHARDSON (to 31st August)
		C. BROWN (from 1st September)

Anguilla.

Senior Agricultural Instructor	...	V. F. BANKS
Foreman, Agricultural Station	...	J. CONNOR

The Agricultural Superintendent was absent from the Presidency from December 14th to December 20th, 1951 attending the first meeting of the British Caribbean Advisory Council on Agriculture, Animal Health and Husbandry, Forestry and Fisheries which was held in Barbados.

Mr. S. L. Henry, Marketing Officer, was on vacation leave from 7th September to 15th November, 1951.

Mr. C. Halbert, Junior Clerk, was on vacation leave from 28th February to 17th July, 1951,

eport of the Agricultural Department, St. Kitts-evis-Anguilla, for the year ended 31st December, 1951.

SECTION I.

AGRICULTURE IN THE PRESIDENCY.

Weather Conditions.

St. Kitts. The average monthly rainfall for the year is given in able I and is compared with the rainfall for the period 1914—1951.

TABLE I.

Month.	*Rainfall in Inches.*	
	Average 1914—51.	*Average 1951.*
January ...	3·68	6·14
February ...	2·18	1·74
March ...	2·40	1·28
April ...	3·28	1·65
May ...	4·32	5·44
June ...	4·08	3·50
July ...	4·73	5·08
August ...	5·58	5·97
September ...	6·58	6·45
October ...	6·45	4·35
November ...	6·85	5·72
December ...	4·55	10·19
Total ...	54.68	57·51

The average monthly rainfall figures for the Island for 1951, when mpared with the average figures for the period 1914—51, show that e total precipitation was above average but that its distribution was satisfactory. The rainfall for 1951 was 2 inches less than the rain-l for the previous year.

The Meteorological Report for 1951 is given as Appendix I to this eport.

Nevis. While the rainfall during the year was, in some sections of island, not below average yet long periods of very hot dry weather ulted in a rapid loss of soil moisture through evaporation.

The rainfall recorded for the year and the average rainfall figure er a period of 7 years at 3 stations located in different districts of the and are given in Table II.

TABLE II.

RAINFALL IN INCHES.

	Prospect		Cades Bay		New River	
	Average previous 7 years.	1951	Average previous 7 years	1951	Average previous 7 years	19
January ...	4·59	5·63	3·25	3·90	2·72	2·5
February ...	2·88	1·18	2·22	1·45	1·53	0·6
March ...	1·87	0·65	1·54	0·50	1·25	0·7
April ...	2·72	0·83	1·90	1·56	1·62	0·(
May ...	3·70	3·52	3·47	5·99	2·88	4·3
June ...	3·54	1·35	2·66	4·68	2·43	3·1
July ...	4·60	3·91	5·21	4·22	2·95	1·4
August ...	5·82	5·62	6·43	5·14	3·50	4·4
September ...	7·80	6·14	7·76	7·24	5·68	4·4
October ...	6·37	6·14	5·22	3·02	2·83	5·5
November ...	4·90	4·20	5·06	4·92	4·32	4·(
December ...	3·68	7·91	3·20	7·68	3·03	12·6
Total ...	52·47	47·08	47·92	50·30	34·74	43·9

The highest maximum temperature recorded for the year at t Prospect Experimental Station was 90° F on 16th August and t lowest minimum temperature 63° F on 13th March.

ANGUILLA. The rainfall in the Valley District was 14 inches le than the rainfall for 1950 and the distribution was unsatisfactory. Ju and November were exceptionally dry. The monthly rainfall for t year at the Agricultural Station in the Valley district is given Table III.

TABLE III.

Month.	Rainfall Inches.	No. of days of rain.	Highest rainfall inches.
January ...	3·45	10	1·24 on 17th
February ...	0·78	4	0·46 ,, 3rd
March ...	1·32	4	0·56 ,, 22nd
April ...	2·09	7	0·40 ,, 25th
May ...	6·37	12	2·40 ,, 31st
June ...	0·17	3	
July ...	5·33	17	1·02 ,, 29th
August ...	8·50	14	4·10 ,, 19th
September ...	5·21	20	0·74 ,, 27th
October ...	6·50	13	1·60 ,, 26th
November ...	2·94	13	0·48 ,, 3rd
December ...	4·58	16	1·36 ,, 24th
Total ...	47·24	133	

AGRICULTURAL INDUSTRIES.

Sugar.

St. Kitts. The weather in January and February, 1950 and for the period August to December, 1950 was favourable for the growth of the 1951 cane crop but in most districts of the island there was a prolonged drought from March to July. In 1951 the reaping season was exceptionally dry in February, March and April.

The 1951 crop was started on 29th January and was completed on 16th August. The output of sugar by the St. Kitts (Basseterre) Sugar Factory was 44,272 tons grey crystals. This was a new record and was 3,000 tons higher than the output in 1950. Approximately 1,400 tons of sugar were manufactured from canes supplied from Nevis.

The St. Kitts (Basseterre) Sugar Factory purchased from growers in St. Kitts 369,515 tons of cane as compared with 334,714 tons in 1950 and 292,160 tons in 1949. The average yield of cane per acre was 30·26 tons as against 29·54 tons in 1950 and 27·73 tons in 1949. The average yield of sugar per acre was 3·51 tons as against 3·56 tons in 1950 and 3·31 tons in 1949. The sugar exported amounted to 38,542 tons valued at £1,148,928 as against 38,646 tons valued at £1,120,102 in 1950. 3,120 tons grey crystal sugar remained in stock at the St. Kitts (Basseterre) Sugar Factory at the end of the year for export in 1952. Approximately 2,480 tons of sugar were retained for local consumption. 1,223,531 gallons of vacuum pan molasses valued at £31,652 were exported as against 1,007,647 gallons valued at £23,343 in 1950.

The sugar was sold to the Ministry of Food at £30 2. 6. per ton c.i.f. (£29 6. 6. per ton f.o.b.) plus £2 15*s.* per ton to be held by the Government of the Presidency as special funds for Rehabilitation, Price Stabilisation and Social Welfare.

The first payment for canes was 38*s.* 6·53*d.* per ton. The contractors' share of the surplus was 5*s.* 5·66*d.* per ton making a total price of 44*s.* 0·19*d.* per ton of cane as against 41*s.* 2·85*d.* per ton in 1950. Outside suppliers were paid 41*s.* 6*d.* per ton of cane as against 38*s.* 9*d.* per ton in 1950 and 32*s.* 6*d.* per ton in 1949.

At the end of the year the 1952 crop was estimated at 44,000 to 45,000 tons of sugar.

Figures of production for the past ten years are given in Table IV.

TABLE IV.

Sugar—St. Kitts.

Year.	Average rainfall previous year. Inches.	Acreage reaped. Acres.	Tons of cane produced.	Tons of cane per acre.	Tons of sugar produced. Grey crystals 96	Tons of sug per acre.
1942	50.92	10,052	273,275	27.19	33,061	3.24
1943	81.53	9,063	262,933	29.01	32,161	3.52
1944	66.95	9,310	211,788	22.75	27,621	2.95
1945	53.02	8,581	225,029	26.22	28,543	3.32
1946	46.74	9,524	266,576	27.99	33,513	3.50
1947	37.95	10,718	280,054	26.13	34,357	3.10
1948	48.22	9,880	264,956	26.81	31,392	3.15
1949	50.24	10,534	292,160	27.73	35,667	3.31
1950	62.15	11,330	334,714	29.54	39,786	3.56
1951	59·73	12,210	369,515	30.26	42,856	3.51

Note:—The weight of canes supplied from Nevis and the equivalent tonnage of sugar are n included in the above figures.

The variety percentages for all crops for the period 1944 to 195 are given in Table V.

TABLE V.

Percentages of Acreages of Sugar Cane Varieties reaped in St. Kitts during the period 1944 to 1951.

Percentages of Totals.

Varieties.	Crop year.							
	1944	1945	1946	1947	1948	1949	1950	1951
B37161 ...	5·63	30·80	56·96	73·00	84·69	92·93	94.29	93·69
B34104 ...	0·45	2·10	7·74	8·34	4·76	3·28	1·38	1·63
B3439 ...	26·29	18·05	6·02	4·86	2·69	0 12	0·54	—
B35187 ...	2·14	5·55	7·70	4·63	1·14	0·52	0·09	0·01
B2935 ...	47·57	26·29	9·70	2·58	0·61	0·31	—	—
B·H.10 (12) ...	15·70	12·23	6·98	2·41	1·21	—	—	—
B4098 ...	—	—	0·10	0·70	1·93	0·46	0·30	0·17
B41211 ...	—	—	—	0.10	0·31	0·38	0·52	2·74
B38212 ...	—	—	0·05	—	0·11	0·06	—	—
B3337 ...	—	—	—	—	—	0·06	—	0·39
B4362 ...	—	—	—	—	—	—	0·01	0·06
B41227 ...	—	—	—	—	—	—	0·05	0·09
Mixed ...	1·08	4·45	4·52	3·47	2·56	1.88	2·82	1·22

It will be seen from the above Table that of the total acreage reape by estates in 1951 B.37161 continued to occupy 94 per cent. of the are The acreage of B.41211 has increased by 2·22 per cent.

According to the Customs returns the exports of sugar and molasses or the period 1942—51 are as shown in Table VI.

TABLE VI.

SUGAR—EXPORTS AND VALUES.

Year.	Sugar.		Molasses.		Prices grey crystals per long ton f.o.b.
	Exports Long Tons.	Value. £	Exports Imp. gallons.	Value £	£. s. d.
1942	23,464	235,417	559 238	6,069	13. 2. 9
1943	36,011	510,961	477	4	13. 15. 3
1944	27,593	418,485	306,331	4,220	14. 15. 7
1945	26,666	459,394	1,535,286	33,672	16. 19. 6
1946	30,739	599,485	679,820	15,576	18. 17. 8
1947	31,631	756 560	574,786	13,490	20. 15. 6
1948	30,448	819,031	947,255	21,348	23. 12. 1
1949	33,781	918,110	1,067.807	15,023	23. 12. 3
1950	38,646	1,120,102	1,007,647	23,343	27. 1. 7
1951	38,542	1,148,928	1,223,531	31,652	29. 6. 6

NEVIS. The sugar cane crop was again a record one for Nevis. t is estimated that approximately 1,171 acres were harvested for the 951 crop. The crop was disposed of as follows:—

Purchased for shipment to St. Kitts	...	12,728 tons
Crushed at Hamilton and New River sugar works for manufacture of muscovado sugar (estd.)	...	1,124 „
Total production	...	13,852 tons

In table VII information relating to production, marketing and rice of canes is given for the past 10 years.

TABLE VII.

Sugar Cane Industry—Nevis.

Year.	Canes (tons)			Prices.		Weight of canes paid for by the St. Kitts Factory.	Loss% (Nevis scales to weighing station at St. Kitts.)
	Quantity purchased for shipment to St. Kitts.	Quantity used for production of Muscovado sugar.	Total Production.	Total price paid by Marketing Dept. for canes shipped to St. Kitts.	Total price paid by St. Kitts Factory for Nevis canes.		
				s. d.	s. d.		
1942	3,849	900	4,749	13 4¾	18 6	3,663	4.8
1943	2,546	750	3,296	14 6½	20 0	2,404	5.6
1944	1,349	600	1,949	16 7½	22 3	1,264	6.3
1945	484	540	1,024	19 1	25 6	447	7.6
1946	1,698	1,022	2,720	22 7	28 3	1,618	4.7
1947	6,510	1,544	8,054	23 6	29 6	6,177	5.1
1948	2,176	2,130	4,306	24 11½	33 3	1,998	8.2
1949	6,544	530	8,974*	25 11½	33 6	6,254	4.4
1950	12,267	850	13,117	30 1	39 9	11,765	4.0
1951	12,728	1,124	13,852	31 11½	42 6	12,217	4·0

*It is estimated that approximately 1,900 tons of canes were not reaped for this crop.

The total price paid to growers for canes was 31*s.* 11½*d.* per ton at the scales. A first payment of 27*s.* 1*d.* per ton was made and a final payment of 4*s.* 10½*d.* per ton. Growers therefore received 1*s.* 10½*d.* per ton more for their canes than for the previous crop.

Owing to lack of adequate shipping facilities in the windward district 1,976 tons of cane had to be trucked from that district to Charlestown for shipment. Lack of co-operation of growers and truck owners with the department resulted in unnecessary losses from stale cane.

The estimated crop for 1951 is approximately 3,000 tons cane less than the previous crop.

Cotton.

The production for the 1950—51 season is given in Table VIII.

TABLE VIII.

Production 1950—51.

Islands.	Acreage.	Clean lint.		Stained lint.		Total lint.		Yield per acre lb.	
	Acres.	Bales.	lb.	Bales.	lb.	Bales.	lb.	Clean.	Stain.
Kitts ...	690	190	89,361	93	50,029	283	139,390	130	72
s ...	2 184	591	296,246	73	36,679	664	332,925	136	17
uilla ...	60	13	3,315	1	166	14	3,481	55	3
Total	2,934	794	388,922	167	86,874		475,796		

The production for the past ten years is shown in Table IX.

TABLE IX.

Cotton.

Year.	Area planted in Sea Island Cotton. *Acres.*				Total lint production. *lbs.*				Yield of lint per acre.		
	St. Kitts.	Nevis.	Anguilla.	Total.	St. Kitts.	Nevis.	Anguilla.	Total.	St. Kitts.	Nevis.	Anguilla
—42	1,530	4,500	225	6,255	188,173	610,825	30,557	829,555	123	136	136
—43	1,100	2,573	200	3,873	223,150	200,148	17,224	440,522	203	80	86
—44	342	2,544	70	2,956	59,439	302,982	4,503	366,924	174	119	64
—45	1,032	2,680	70	3,782	257,831	314,818	4,611	577,260	250	117	66
—46	860	1,688	60	2,608	158,716	205,045	4,222	367,983	185	121	70
—47	956	1,319	30	2,305	194,038	101,224	1,972	297,234	203	77	66
—48	333	1,668	60	2,061	73,434	246,792	2,608	322,834	223	148	43
—49	1,169	3,106	100	4,375	231,089	315,391	4,864	551,344	197	101	48
—50	830	1,414	60	2,304	139,114	155,493	4,110	298,717	168	110	69
—51	690	2,184	60	2,934	139,390	332,925	3,481	475,796	202	153	58
s ...	884	2,368	94	3,346	166,437	278,564	7,815	452,816	193	126	71

In St. Kitts there was a further reduction in the acreage under on. This was due chiefly to the very dry weather in March and il when the crop is planted. In many fields the crop could not be blished and these were later planted either in sugar cane or food s. Eventually 690 acres were established but yields were on the whole r. Again there was a very high percentage of stains as a result of

heavy infestation of the crop by pink bollworm early in the seaso The total yield of lint was better than in the previous season but t yield of clean lint was only 130 lb. per acre. Stains amounted to 36 p cent. of the crop as against 23 per cent. for the previous crop and 11 p cent. in 1947. Arrangements have been made for an Entomologist visit the Presidency to investigate the high incidence of pink bollwor infestation in St. Kitts in recent years.

The clean lint had not been shipped at the end of the year b growers had contracted to sell this lint to the Raw Cotton Commissi at $1.12 per lb. (f.o.b. St. Kitts). The stains were sold to local buyers 48 cents and 54 cents per lb.

For the 1950–51 crop 2,179 growers in Nevis planted 2,185 acr and reaped the best crop for many years in respect of both yield a quality. The yield of 153 lb. per acre was the highest obtained for so time and the results of the grading of the clean lint were excellent— per cent. of the crop falling in grades I and II. Stains amounted to per cent. of the crop.

296,060 lbs. of clean lint were sold to the Raw Cotton Commissi at an average price of 90.9 cents per lb (f.o.b. Nevis). The stains we sold to a local buyer at 39 cents per lb.

Growers received a first payment of 20 cents per lb for clean se cotton, an interim payment of 2 cents per lb and final payment of 4 cen per lb. The total prices paid by Government to peasants for their cott were 26 cents per lb. for clean seed cotton and 10.5 cents for stains.

It is estimated that 3,800 acres have been planted for the 1951- crop as against 2,185 acres for the previous crop. At the end of t year the prospects for a good crop were promising.

In Anguilla only a very small acreage of cotton was planted a yields were poor. However pink bollworm infestation was low and t crop was cleaner than it had been for many years. Clean seed cotton w purchased by Messrs Rey & Co at 24 cents per lb.

The crop for 1951–52 looked fairly promising at the end of the y

According to the Customs returns the exports of cotton lint, cott seed, cotton seed meal and cotton seed oil for the period 1942–51 are shown in Table X.

TABLE X.

Cotton – Exports and Values.

Year	Cotton Lint.		Cotton Seed.		Cotton Seed Meal.		Cotton Seed Oil.		Cotton Lint (clean) f.o.b. per lb.
	Exports lb.	Value £	Exports tons.	Value £	Exports tons.	Value £	Exports gals.	Value £	
1942	805,704	72,295	...	...	11	67	2,481	453	22½—23½d.
1943	287,611	25,424	...	...	14	80	559	122	22½—24d.
1944	492,316	47,564	...	...	13	96	665	168	...
1945	593,657	58,347	...	...	105	616	940	284	...
1946	269,477	17,113	2	75	6	47	2,624	779	19—21d
1947	462,015	48,240	...	...	10	35	124	27	27—28d.
1948	246,468	30,801	...	...	12	133	135	51	34—39d.
1949	591 179	78,730	...	...	32½	273	1,933	689	37½—46d.
1950	269,605	44,495	...	...	199	8,897	450	84	37½—46d.
1951	352,832	62,134	...	...	68	757	...	...	51½—56d.

Coconuts.

In Nevis two estates continue to make a small amount of copra for export to Barbados. 183,762 lbs. of copra, 33,435 dry nuts, 162 water nuts and 1,400 planting nuts were exported during the year.

Food Production.

The planting of food crops on the lower lands of estates in St. Kitts has continued to be controlled under the provisions of the Vegetable Production (Defence) Control Order, 1942 and estates were required to plant in vegetables a minimum of 20 per cent. of their total sugar cane acreage.

There was a shortage of sweet potatoes in the middle of the year as a result of the very dry weather experienced in February, March and April. It should be possible for estates to grow more yams but usually there is a shortage of planting material which can only be partly met by importations from other islands.

There is no progress to report in the production of corn by estates for local consumption. With the limited amount of land available and the very satisfactory price which is at present being paid by the St. Kitts (Basseterre) Sugar Factory for sugar cane owners of estates find it more profitable to devote all their energies to cane growing. There is no effort on their part either to improve the production of food crops or to develop a small livestock industry.

Prædial larceny, however, still remains a very serious problem for those who may make an effort to grow vegetables.

During the year the department gave assistance to one estate with the contouring and bunding of the upper lands which are used by labourers for the cultivation of food crops, chiefly during the out-of-crop season. During the harvesting of the cane crop labourers have little time to cultivate these lands which are nearly all situated at a considerable distance from the villages where they live. At present the yields of food crops obtained on the upper lands of estates are very low.

In Nevis unfavourable weather was responsible for a shortage of locally grown foods during some months of the year. Green vegetables were not as plentiful at the end of the year as in the previous season. The cabbage crop was heavily attacked by larvae of the Cabbage White Butterfly and of the Diamond-back Moth.

In Anguilla Indian corn and pigeon peas were plentiful during the year, but yams, sweet potatoes, guinea corn and green vegetables were scarce.

Livestock.

In Nevis livestock were in poor condition in most districts of the island during the drought in the early part of the year. Fortunately large quantities of cane tops were available to peasants for feeding to their stock during the dry spell. Malnutrition was responsible for the death of a number of sheep on one estate. This property is over-stocked and much work requires to be done on its paddocks before livestock can be raised on it with any success.

In Anguilla the condition of livestock during the year was satisfactory.

Section II.

WORK OF THE DEPARTMENT OF AGRICULTURE.

Investigational Work.

Sugar Cane.

Experimental work with the sugar cane crop was continued as in previous years and was carried out in co-operation with the St. Kitts Sugar Association.

18 varietal, 7 spacing, 10 manurial and 1 liming experiments were reaped on estates during the year under the supervision of officers of the department. The results of the varietal trials were communicated to the owners of estates before the planting of the 1953 crop. The report on the experiments has been submitted to the Sugar Association and this body is arranging to have it printed for distribution.

In October, November and December officers of the department laid wn on estates a number of sugar cane experiments for the 1951-53 son.

The following is a summary of the more important conclusions ich have been drawn from the results of the experiments reaped in 51.

VARIETIES.

Varieties of the B 37′, B40′, B41′, B 43′, B 44′, and B 45′, series ve been under comparison with the standard variety B 37161 which cupied slightly under 94 per cent. of the area harvested in 1951.

B40′ series.

In the one experiment in which B4098 was under trial this variety s not proved superior to B 37161 and the extension of its cultivation nnot be recommended owing to its tendency to uproot under conditions St. Kitts.

B 41′ series.

B.41211 has continued to give excellent yields of canes in all rain- l zones of the lower lands and has given good yields on the middle and per lands. This variety has continued to outyield B.37161. For the 51-53 crop it is recommended that at least 50 per cent. of the lower nds should be planted to this variety and that the area under it in the ddle and upper lands should be increased.

B.41227 has continued to give moderately good results on the wet per lands and a slight increase of the area under this variety on these nds has been recommended.

B43′ series.

B.4362 has not given results as good as those of B.41211 and 37161 and the cultivation of this variety cannot be recommended. The ice quality of B.4362 is better than that of any other variety at present der cultivation in St. Kitts.

B.43229, *B.43235*, *B.43330*, *B.43537* and B.43391 have proved ferior to B.37161 and B.41211 in all areas in which they have been ed.

B44′ series.

B4466 has given promising results in plant and ratoon trials on the ier lower lands and appears to be worthy of further trial.

B44278 did well in two experiments on the middle lands of inter- ediate rainfall.

B4408 has given promising results in one experiment.

B4409, *B4425*, *B44111*, *B44165*, *B44182*, *B44254* and B.4427 have given results inferior to the standard variety in all experiments i which they have been tried.

B45' series.

B45188 and *B45270* gave promising results in the experiments i which they were included and will be included in further trials.

Summary of Planting Recommendations.

Ecological area.		Recommended varieties (per cent. of area to be replanted.)					
Elevation.	Rainfall.	B.37161	B.41211	B.34104	B.41227	B.45270	B.45188
Lower Lands	Low	50	50	—	—	Nurseries	Nurseries
	Intermediate	50	50	—	—	,,	,,
	High	50	50	—	—	,,	,,
Middle lands	Low	60	30	10	—	Nurseries	—
	Intermediate	60	25	10	5	,,	Nurseries
	High	70	10	10	10	,,	,,
Upper lands	Low	80	10	10	—	Nurseries	—
	Intermediate	80	25	10	5	,,	Nurseries
	High	45	5	45	5	—	,,

Note:— Small acreages of B. 4166 and B43337 might be planted in all areas.
Small acreages of B. 4408 and B. 44278 might be planted on the areas of intermediate and high rainfall.

Spacing Interval.

The results of this year's experiments confirm, in general, the previous conclusion that the distances between the rows of cane can be widened to 5½ feet without loss in yield of plants or ratoons provided that in the drier areas the interval between the stools in the row is not less than 4 feet and that in the wetter areas continuous planting is practised in the row.

MANURES.

Nitrogen.

The results of the experiments on the application of dressings of nitrogen to plant canes confirm the recommendation made in earlier reports for dressings of sulphate of ammonia not exceeding 3 to 4 cwts. per

ere. Larger dressings have depressed yields in some instances but the uice analyses of the 1951 experiments do not reveal any depression of ne sucrose content of the juice by the heavier nitrogen applications.

High Nitrogen and Phosphate.

At Wingfield estate there has been a definite response to moderate ressings of nitrogen and phosphate in the plant cane, first ratoon and econd ratoon crops. In the second ratoon crop the highest dressing of itrogen and phosphate gave an increase in yield of 7 tons cane per acre ver the yield of plots receiving 4 cwts. sulphate of ammonia and 2 cwts uperphosphate of lime per acre. The experimental area at Wingfield as found to be low in available phosphate.

At Molineux and Stapleton estates there was no response to high ressings of nitrogen and phosphate in plant cane or in the first and econd ratoon crops.

Long-term Manurial Experiment.

Nine crops have been reaped on the experimental area which is ituated in the drier lower lands.

No gain of plant cane has been found to result from applying sul- hate of ammonia in addition to pen manure. Application of 3 cwts. ulphate of ammonia to each ratoon on the plots pen-manured as plant ane has given rise to a total gain of 32.27 tons cane over the five ratoon rops or 6.45 tons cane per ratoon crop.

Up to date there is only a small difference in the total yield of plant ane of the pen manured plots and the yield of those plots receiving arti- cial manures only.

It is hoped to lay down a similar experiment on land which has not eceived over a considerable period of years previous to laying down the xperiment heavy dressings of pen manure as had been the case in the resent experimental area.

Liming Experiment.

One liming experiment was laid down on Molineux estate to compare the esults of applications of Trinidad ground limestone and Anguilla beach and, which is a highly calcareous material, on the yield of plant cane. The soil of the experimental area was found to contain 0.168 per cent f exchangeable calcium as calcium oxide and the applications of lime and and resulted in no increase of yield.

Disinfection of Cane Plants.

Two experiments were carried out to test the efficacy of organic ercury compounds and lime water on the germination of cane plants.

In both experiments all the treatments produced a significant increase the average number of shoots over the controls.

Cotton Seed Multiplication.

A better crop was reaped from the seven acre multiplication area La Guerite than in 1950 but the crop was severely damaged by the pi bollworm. 35 per cent. of the cotton reaped was stains. 1,213 lb. cle lint was obtained and had not been exported at the end of the year. T stains were sold to a local buyer at 54 cents per lb. 2,500 lb. of plantir seed was obtained and will be used for establishing seed multiplicati areas on estates in 1952.

In Nevis 5 acres at New River estates were planted with pedigr seed from Montserrat. After discussion with the Cotton Officer for t West Indies it has been decided to continue to import seed each seas from Antigua or Montserrat for planting the Nevis crop. Twenty to of seed were imported from Montserrat for planting part of the 1951-5 crop.

Cotton Varietal Trials.

In Nevis three cotton varietal trials were reaped during the yea In September a varietal trial was planted at Prospect and a varietal cum manurial trial at Cades Bay. At New River an experiment is bein carried out to ascertain the effect of spraying weekly with wettable D.D.T powder on pink bollworm infestation. All these experiments have bee undertaken at the request of the Cotton Officer for the West Indie The lay out of the experiments are designed by this officer and the result analysed in his office at Antigua.

The results of the experiments reaped in 1951 are summarised below

Cotton Variety Trials 1950-51.

Variety.	Yields lbs. per acre of lint.			
	Prospect.	Cades Bay.	New River.	Mean.
M.S.I. ...	334	564	360	419
V135 ...	301	451	301	351
B.D ...	284	452	264	333
N.S.I. ...	272	491	322	362
VH10 ...	318	553	366	412
V2 ...	352	—	—	—
V3 ...	312	—	—	—
V4 ...	317	—	—	—
VH8 ...	327	538	309	391
C.D. 5% ...	30.0	46.4	52.0	

Lint Yield as percentage of M.S.I.

M.S.I.	...	100.0	100.0	100.0	100.0
V135	...	90.0	79.9	83.5	83.8
BD	...	84.9	80.1	73.1	79.5
N.S.I.	...	81.5	86.9	89.4	86.4
VH10	...	95.1	98.0	101.5	98.3
V2	...	105.2	—	—	—
V3	...	93.3	—	—	—
V4	...	94.8	—	—	—
VH8	...	97.8	95.3	85.7	93.3
C.D. 5%	...	9.0	12.4	14.4	

Note:—The yields given for VH8 at Prospect are the means of the three VH8 strains V2, V3 and V4.

The following comments on the results were made by the Cotton Officer

"The results follow much the same pattern in yields and ginning percentages at the three centres. VH10 is very similar to M.S.I. and thus confirms the results in Antigua and Montserrat. M.S.I. did a little better with you this year and BD was relatively poor and it is clear that V135 and the above two are very definitely low yielders and any improvement in quality would have to be paid for by lower yields compared to M.S.I. VH 8 did well considering that it is a high quality cotton and it is heartening to know that it also did well in Antigua and Montserrat."

Processing Plants operated under supervision of Officers of the Department.

Only 4,376lb cob corn and 3,155lb shelled corn were purchased at the Government's cornmeal plant at La Guerite during the year. The cob corn was purchased from three estates in St. Kitts and the shelled corn from the marketing department in Nevis. 1,394lb cornmeal and 5,304lb cracked corn were prepared and sold. There is a considerable demand for cracked corn for feeding to poultry. 18,478lb cob corn was received from estates for cracking for use as stock feed.

In Nevis the corn mill at the Hardtimes settlement was operated every other Friday throughout the year but the corn crop was small and only 7,608 lb cornmeal was crushed for peasants. 950 lb cracked corn was made for stock feed.

The muscovado works at New River and Hamilton were operated during the year. It is estimated that 760 tons of cane were crushed at New River and 364 tons at Hamilton. Approximately 75 tons of muscovado sugar were manufactured at these plants for local consumption.

Extension Work.

In St. Kitts the senior agricultural instructor has started soil conservation work on the upper lands where food crops are cultivated chiefly in the out-of-crop season, by estates' labourers. The yields obtained on these lands are at present very low and cultivators are being advised to improve their methods of cultivation and manuring in order to obtain better yields. The two junior instructors have been engaged chiefly on controlling the harvesting of the cane crop on the settlements and on advisory work mainly on the settlements. Lack of transport for these these two officers has made it difficult for them to carry out extension work outside of the settlements.

In Nevis the post of one agricultural instructor remained vacant during the year. One instructor was engaged for most of the year on work connected with the D. & W. Scheme for the development of the cattle industry. The three other instructors carried out advisory work among peasants outside the land settlements after completion of the cane crop.

Marketing and Credit Facilities.

For the 1951 season 6,000 tons of cane were marketed for the allottees of the Fahies, Sadlers and Harris settlements. The total amount received for the cane crop of the three settlements was $63,392.58 and the amount which was paid to allottees for canes put at the factory siding and packed in railway trucks was $44,010.61. A statement of receipts and expenditure is published as an appendix to this report.

In Nevis the Marketing Department continued to market cotton, sugar cane and maize for peasant cultivators and to provide them with credit facilities for insecticides, artificial manures and planting material. Cash loans up to £3 for cane cultivation were granted to approved allottees on Government settlements.

The total receipts from sales of clean and stained cotton lint and cotton seed amounted to $277,449.66 and marketing expenses to $37,582.65. Receipts from the sale of canes to the St. Kitts (Basseterre) Sugar Factory amounted to $124,618.00. Statements of receipts and expenditure in connection with the marketing of peasants' cane and cotton are published as appendices to this report.

The Marketing Officer is also responsible for the operation of the Government Ginnery. For the 1951 season 279,599 lb clean lint and 33,180 lb stained lint were ginned and baled. Receipts of the ginnery amounted to $15,159.46 and expenditure (excluding cost of management, depreciation charges and interest) to $10,738.52.

Soil and Forest Conservation.

In St. Kitts approximately 18,000 feet of permanent contour unds were established on Government land settlement estates, iefly on the higher lands. The bunds are planted in khus-khus ass. The planting of Molasses grass (*Melinis minutiflora*) on hill-les at Sadlers was continued.

The senior Agricultural Instructor supervised the contouring and nding with khus-khus grass of the upper lands of Mansion estate hich are used by labourers for the cultivation of food crops. This ork will be extended to the upper lands of other estates.

In Nevis the stone bunds on New River and Hardtimes settle-ents were repaired and main drains on Hardtimes and Low Ground ere reopened.

In both St. Kitts and Nevis attention was given to the protection forest areas. In Nevis the Forest Guard issued 431 permits for harcoal burning and 45 permits for felling trees. There were 56 rosecutions for breaches of the Forestry Regulations, chiefly for rning charcoal without a licence.

Land Settlement.

In St. Kitts a Land Settlement and Development Board was ppointed by the Administrator under Section 5 of Ordinance No. 7 of 949—the Land Settlement and Development Boards Ordinance, 949. There are three official and four unofficial members on the oard. The Agricultural Superintendent is Chairman of the Board. rom the 1st January, 1951, the three Government Land Settlement tates were brought under the control of the Board and steps were ken to establish a Land Settlement and Development Fund as rovided for in the Ordinance. In Nevis a land settlement board nctioned in an advisory capacity.

The amount of indebtedness on Government land settlement es-tes in Nevis at the end of the year was $1561.89 as against 2957.36 at the end of 1950. The amounts owed by the tenants on these estates have been considerably reduced. As both the cotton d cane crops were good the department made a determined effort to llect arrears which had been long outstanding.

In Anguilla the tenants on the Landsome settlement are working rd and it appears that they are being rewarded for their efforts. any of the plots in the rocky area of the estate have now been rent-to peasant cultivators. The Agricultural Instructor gives monthly lks to the tenants on the estate.

Stud Animals on Government Settlement.

Two half-bred Holstein bulls and two pure bred Berkshire boa were on service at the settlements in St. Kitts at the beginning the year. The Berkshire boar at Sadlers settlement died early April. The number of services by these animals during the year shown below.

Bulls	...	72 services
Boars	...	25 „

One half-bred Holstein bull from the Bayfords Farm remained stud at Stapleton estate during the year.

In Nevis 6 bulls, 3 jacks, 1 stallion, 2 bucks, 3 rams and 3 boa are kept on various land settlement estates for use by peasants at nominal fee. The number of services during the year is as follows:–

Bulls	...	156 services
Jacks	...	15 „
Stallion	...	3 „
Bucks	...	26 „
Rams	...	25 „
Boars	...	90 „

In Anguilla four African (Black belly) ram sheep and two grad Holstein bulls were sent from the Agricultural Station in the Valle to stud centres in different parts of the island. The rams we obtained from Barbados and the bulls from Bayfords Farm, St. Kitt Four sheds were erected by Government at the centres for housin the animals. At the end of the year the following animals and pou try were on the Agricultural Station in the Valley: 1 grade Zebu bul 1 grade Holstein bull, 3 Black Head Persian ram sheep, 2 Africa (Black belly) ram sheep, 5 British Alpine buck goats, 1 Britis Alpine-Saanen doe, 1 Berkshire boar, 6 Barred Plymouth Roc cockerels and 14 Plymouth Rock pullets. During the year the Zeb bull had 42 services and the Holstein bull 53 services.

Loofahs.

During the year work on the development of the cultivation Loofahs as a minor industry was continued. Four of the varieties Luffa cylindrica, which were obtained from the United States Depart ment of Agriculture in March, produced fruit of a length suitable fo sale in the United Kingdom. It is proposed to grow a 1/10th acr plot of one or two of these varieties at the experimental station at L Guerite in 1952 in order to investigate yields and cost of productio and to obtain sufficient fruit for a trial shipment.

Aloes.

Two plots of an acre each of Aloe plants were grown by the gricultural Instructor in Anguilla to investigate the possibility of roducing dried aloes in that island for export. One plot was tablished on arable land on Landsome estate and the other on rocky nd at Rendezvous estate. The results obtained so far indicate that is unlikely that the preparation of aloes in Anguilla can be made a rofitable undertaking.

Lespedeza.

Seeds of six varieties of Lespedeza have been obtained from the nited States Department of Agriculture for trial. The germination f the seed has been excellent. Lespedeza is useful for pasturage nd for soil improvement.

Distribution of Planting Material.

The following planting material was distributed from the experiental stations in St. Kitts and Nevis during the year:—

Vegetable seeds	...	330 lbs.
Onion seedlings	...	395,000
Cabbage ,,	...	7,700
Tomato ,,	...	4,800
Egg Plant ,,	...	750
Cane cuttings	...	36,000
Ornamental trees & plants	...	286
Papaw plants	...	10
Grafted mango plants	...	25
Budded pear ,,	...	6
Seedling lime ,,	...	5
Guava ,,	...	8
Sweet potato cuttings	...	50,000
Cassava ,,	...	45,000
Budded orange ,,	...	1
Grape ,,	...	5

Chemical Work.

412 samples of milk were analysed and flash point determinations ade on samples of kerosene oil for the Customs Department.

Boards and Committees.

The Agricultural Superintendent is Chairman of the Land ettlement and Development Boards of St. Kitts and Nevis, an Income ax Commissioner member of the Sugar Industry Rehabilitation

Fund Committee, member of the Forestry Board and of the Researc Committee of the St. Kitts Sugar Association and Honorary Secretar and Treasurer of St. Kitts Sea Island Cotton Growers Association Ltc

In Nevis the Agricultural Officer is Chairman of the Forestr Board of that island.

Colonial Development and Welfare.

NEVIS

Scheme D1179—Facilities for marketing peasants' canes in Nevis.

Under this Scheme a new ten ton weighbridge was purchase and put down at Charlestown. This scale has greatly facilitated th shipment of canes to St Kitts.

Scheme D1511—Cattle Industry, Nevis.

This scheme was approved in late December of the previous yea and work was started in early January, 1951.

A dipping tank with necessary pens, a storeroom, implemen shed, garage and one stockman's house have been built. 3,528 yard of mesh wire fence with a single top line of barbed wire and 891 yard of a six line barbed wire fence (to keep out small stock) have bee erected. 471 yards of temporary fencing enclosing areas plante with guinea grass and Antigua hay grass have also been erected.

An area of approximately 140 acres has been cleared of all bus and scrub. 15 acres have been cultivated and planted with Guine grass, Elephant grass, Giant Star grass and Colonial grass. Work i now being continued on the clearing of hill sides of scrub and plant ing with grass, chiefly Guinea grass, Rhodes grass and Giant Sta grass.

Twenty-five cattle have been purchased from peasants and a her of eighteen have been transferred to the Maddens farm. This bring the total number of cattle at this farm to 109.

Scheme D1672—Group Farm Pilot Project.

This scheme was approved on the 28th August, 1951. A fre grant of £18,460 has been given for the development of a group farm on the lands of Cades Bay and Spring Hill estates.

A cane nursery to provide planting material of the varieti B.4121 and B.4098 has been started at Cades Bay.

At present it is very difficult to get workmen and materials fo the erection of buildings which are needed before satisfactory progres

an be made with this scheme. A manager's house must be provided or the officer who is to control the work on the farm before any important development work can be undertaken.

ANGUILLA.

Scheme D687—Agricultural Development in Anguilla.

Provision of D. & W. funds for this scheme came to an end on 31st December, 1951. Funds for agricultural development in Anguilla are now provided in the local budget.

Bayfords Farm.

The following are the main objectives for the establishment of a livestock and dairy farm at Bayfords:—

1. The breeding by upgrading and selection of a tropical dairy animal possessing the high yield of the European (Holstein) parent and the hardiness, heat tolerance and adaptability of the creole parent.

2. The multiplication of such animals to provide (*a*) herd sires for sale to estates and peasants and for use at Government stud centres in St. Kitts, Nevis and Anguilla and (*b*) heifers for sale to persons interested in the dairy industry.

3. The augmenting of the milk supply of the town of Basseterre.

Up to the end of 1951 only two of the $\frac{3}{4}$ grade animals were in milk and it is therefore impossible at the present time to arrive at any definite conclusions. The $\frac{3}{8}$ and $\frac{1}{2}$ grade heifers have done quite well on the whole and two or three families promise to be above the average.

The multiplication of numbers to provide both bulls and heifers is necessarily slow but up to the end of 1951 some fourteen young bulls had been produced and were in use as sires and others should soon be available. Few heifers have been sold because of the need to first build up a foundation herd sufficiently large to provide a surplus but the time is fast approaching when this can be done.

The quantity of milk produced over the period 1948—51 rose from 86,000 lb to over 142,000 lb. and the Bayfords Farm is therefore assisting in meeting the need of Basseterre for a large and wholesome milk supply.

Report on the Government Livestock & Dairy Farm Bayfords

BY

G. L. Bellot, *Manager.*

Weather Conditions.

From 24th January to 9th May the weather was very dry, only 5.9 inches of rain being recorded during this period of 105 days. After May conditions were fairly favourable and the distribution of rainfall satisfactory. Rain fell on 204 days, the heaviest fall being 3.19 inches on 5th December. The total rainfall for the year was 61.92 inches and was distributed as shown by the figures given below.

January	...	7.28 inches
February	...	1.05 „
March	...	1.62 „
April	...	2.24 „
May	...	5.87 „
June	...	4.47 „
July	...	7.09 „
August	...	6.32 „
September	...	5.99 „
October	...	5.49 „
November	...	5.16 „
December	...	9.34 „
Total	...	61.92 inches

Rainfall at Bayfords for the period 1945—51

1945	...	58.32 inches
1946	...	46.70 „
1947	...	47.16 „
1948	...	54.75 „
1949	...	73.28 „
1950	...	66.98 „
1951	...	61.92 „
Mean	...	59.87 inches

The rainfall for 1951 was therefore 2.05 inches above the average rainfall for the period 1945—51.

The monthly means of readings of dry and wet bulb and maximum nd minimum thermometers are given below.

Month.	Dry Bulb.		Wet Bulb.		Rel. Humidity per cent		Max.	Min
	9 a.m.	3 p.m.	9 a.m.	3 p.m.	9 a.m.	3 p.m.		
	°F.	°F.	°F.	°F			°F	°F
January ...	71.6	72.7	68.2	68·6	83.0	80.4	74.3	66.8
February ...	70.6	71.8	67.5	67.7	85.0	79.5	73.2	66.5
March ...	71.2	71.6	66.4	70 0	76.5	92.0	73.9	66.2
April ...	75.0	76.0	71.6	72.1	84.0	82,5	78.2	70.6
May ...	76.3	77.3	73.8	74.0	88.5	85,0	79.3	72.0
June ...	77.8	78.0	74.2	74.6	84.0	85 0	79.9	72.5
July ...	77.5	77.9	74.8	75.2	87.5	87.5	79.7	72·7
August ...	79.3	78.4	75.9	75.7	85.0	87.5	81.4	73.8
September ...	78 7	79,3	75·6	75.5	86.5	83.0	81.0	72.9
October ...	78.0	77.8	75.1	74.5	86.5	85.5	80.5	72.5
November ...	77.6	77 3	74.5	73.7	86.0	83.5	79.6	71,8
December ...	75.3	75.2	71.8	71.3	83.0	82.0	77.0	70.4
Means ...	75.7	76.1	72.5	72.7	84.6	84.5	78.2	70.7

Agricultural.

During the earlier part of the year it was so dry that cultivation and lanting were virtually at a standstill and there was a scarcity of fodder. Cane tops were purchased from a neighbouring estate to augment the upply of fodder. With the rains in May the situation was improved, onditions were ideal for agriculture and there was a fair supply of grass.

Plantings of sweet potatoes were made in May and September of ne and two acres respectively. The yield from the early planting was oor. The second planting had not been reaped at the end of the year ut there was promise of a good yield.

2½ acres were planted in Indian corn. The area was tractor ploughed nd received a light dressing of pen manure. 2,276 lb of grain corn as obtained.

A moderate supply of fresh vegetables was obtained from the vege- able garden during the year.

The majority of the paddocks were cleaned during the year. Four ere ploughed and in these the Elephant grass came back with great igour. Seven paddocks received dressings of Superphosphate of Lime nd Sulphate of Ammonia while one was given a small application of pen anure.

Pangola grass was added to the fodder grasses in the nursery which ow contains the following:— Antigua Hay Grass, Barbados Sour Grass, olonial Grass, Guatemala Grass, Molasses Grass, Pangola Grass, Rhodes

Grass, Giant Star Grass, Sweet Sorghum, Tropical Alfalfa and Tropica Kudzu.

Three acres in one paddock were treated with Fernozone and by th treatment was completely cleared of Black Bush (*Flemingia strobilifera*) which is a very bad weed in the pastures at Bayfords.

CATTLE.

The herd total was 107 head on 1st January, 1951 and 96 on 31s December, 1951. The herd is comprised of the following:—

Holstein	Bulls	(pure bred adult)	...	1
	,,	(grade ,,)	...	3
	,,	(grade yearling)	...	2
	,,	(,, calves)	...	10
	Cows	(,, adult)	...	20
	Heifers	(,, 2 yr. old)	...	14
		(,, yearling)	...	15
		(,, calves)	...	7
Jersey	Bulls	(,, adult)	...	1
	,,	(,, calves)	...	3
	Cows	(,, adult)	...	9
	Heifers	(,, calves)	...	3
Foundation Cows		(mongrel adult)	...	8
		Total	...	96

51 animals left the herd as shown below:

Deaths—	Accident	...	3	
	Anæmia	...	1	
	Anaplasmosis	...	1	
	Pneumonia	...	1	
	Tick Fever	...	2	
	Scours	...	18	26
Sales for breeding	Stud Bulls	...	5	
	Foundation cows	...	1	6
Sales for slaughter	Aged	...	1	
	Barren	...	2	
	Broken leg	...	1	
	Mastitis	...	3	
	Unsuitable	...	2	
	Surplus bulls	...	10	19
	Total			51

26 cows and 14 heifers calved giving a total of 40 calves. Of these 2 were bulls and 18 heifers, representing 55% and 45% respectively. The sires of these were as shown below:

	Male	*Female*	*Total*
Pabst Posch Ghandi	3	6	9
Ryedell's Assurance	10	3	13
Bayfords Edwin	1	—	1
Bayfords Farmer George	1	1	2
Bayfords E. Sharp	2	3	5
Bayfords Felix	—	1	1
Designs Pretty Chief	2	3	5
Total	22	18	40

The weights at birth of all calves were recorded. The grade Holstein ulls had weights ranging from 46.25 lbs to 94.5 lbs and the heifers from 6 lbs to 70 lbs. The weights of Grade Jersey bulls ranged from 50 lbs 5 84 lbs and the heifers from 43.5 lbs to 47.5 lbs. The average weights f the groups were as follows:

Holsteins	Average weight of bulls	72.73 lbs
	„ „ heifers	65.56 „
	Herd average	69.50 „
Jerseys	Average weight of bulls	53.40 „
	„ „ „ heifers	45.00 „
	Herd average	49.66 „

The following are the stud services for the year:—

Pure bred English Holstein	(Ryedell's Assurance) ...	22
Grade „	(Bayfords Edwin) ...	25
„ „	(„ Farmer George) ...	8
„ „	(„ E Sharp) ...	3
„ Jamaican Jersey	(Design's Pretty Chief) ...	9
	Total ...	67

These services were divided among 38 cows and heifers representing n average of 1.76 services per head. This average would not be consid-ed excessive, but the average at Bayfords has been lower than this in ast.

The principal disorders, illnesses etc during the year were:—

(1) Difficult breeding

(2) Persistence of ticks in spite of regular dipping with res tant attacks of tick fevers.

(3) Parasitic gastro-enteritis due to worms.

Two cows failed to settle normally and were given hormone in tions. Even then they did not settle and were finally disposed Hormone injections were however successful in the case of a cow wh failed to come on heat and a heifer that would not settle. Other diffic animals were finally settled after three or more services.

Weather conditions were ideal for the persistence of ticks alm throughout the year, namely high rainfall and high humidity. Dippi were carried first at fortnightly intervals and then weekly, but the in dence of ticks continued to be high. It is therefore not surprising t there were cases of such tick borne diseases as Piroplasmosis and Anapl mosis, the latter being seen at Bayfords for the first time. Altoget there were two cases of Piroplasmosis and five of Anaplasmosis.

Worms were responsible for several deaths in calves during the ye This is attributable to high rainfall and inadequate grazing facilit Deworming with phenothiazine was carried out periodically and as result the situation greatly improved.

The total quantity of milk produced in 1951 amounted to 142,615 or approximately 13,913 gallons. For purposes of comparison production figures for the years 1948 to 1951 are given below.

	1948	*1949*	*1950*	*1951*
Milk produced (lb)	56,577	68,054	114,444	142,6

The total quantity of milk sold during the year was 9,399 gallo

Samples of milk from individual cows were analysed twice a mon and it was found that the average butter fat content varied between 3. per cent. and 4.39 per cent. The average composition of the milk p duced on the farm during the year is shown in the table below.

COMPOSITION OF MILK.

Month	*Total Solids* %	*Fat* %	*Solids not Fat* %
January ...	12.54	4.01	8.53
February ...	12.38	3.75	8.63
March ...	12.23	3.75	8.48
April ...	12.25	3.75	8.50
May ...	12.09	3.68	8.41
June ...	12.03	3.60	8.43
July ...	11.80	3.52	8.28
August ...	12.13	3.69	8.44
September ...	12.51	4.05	8.46
October ...	12.73	4.25	8.48
November ...	12.88	4.25	8.63
December ...	13.06	4.39	8.67
Means ...	12.38	3.89	8.49

The results of lactations of adult cows and first calf heifers completed during the year are shown in the tables below.

ADULT COWS.

Lactation Yields	*Number*	*Percentage of total*
Under 1,000 lb.	—	—
1000—2,000 „	5	26.31
2,000—3,000 „	5	26.31
3,000—4,000 „	3	15.79
4,000—5,000 „	1	5.26
5,000—6,000 „	3	15.79
Over 6,000 „	2	10.53
Average lactation	3,393 lb. in 257 days	

FIRST CALF HEIFERS.

Lactation Yields	*Number*	*Percentage of total*
Under 1,000 lb.	—	—
1,000—2,000 „	—	—
2,000—3,000 „	1	12.50
3,000—4,000 „	3	37.50
4,000—5,000 „	2	25.00
5,000—6,000 „	2	25.00
Over 6,000 „	—	—
Average lactation	4,199 lbs. in 322 days	

The details of 27 lactations completed during the year are giv below. The first 19 animals are cows and the last 8 are first calf heife

LACTATIONS OF COWS AND HEIFERS.

Cow.	Breed.	Yield lb. Milk	Max. lbs per week.	Fat %	lbs. Fat.	Lactat days
Dora ...	Holstein ...	8,546	226	3.24	276.9	526
Celina ...	,, ...	6,136	193	3.90	239.3	344
Beryl ...	,, ...	5,604	218	3.40	190.5	337
Ellen ...	Zebu ...	5,175	196	3.86	199.8	320
Blossom ...	Holstein ...	5,063	194	4.03	204.0	309
Eve ...	,, ...	4,030	177	3.46	139.4	274
Mary ...	Creole ...	3,463	148	3.88	134.4	261
Bertha ...	Holstein ...	3,152	156	3.92	123.5	341
Maud ...	Zebu ...	3,150	128	4.35	137.0	249
Belle ...	Creole ...	2,922	130	4.53	132.4	280
Lucille ...	Zebu ...	2,888	157	3.99	115.2	187
Young Girl ...	Creole ...	2,640	195	3.72	98.2	182
Buttercup ...	,, ...	2,372	140	3.36	79.7	298
Lilian ...	,, ...	2,081	136	4.30	89.5	188
Lizzie ...	Zebu ...	1,741	145	4.32	75 2	143
Emily ...	,, ...	1,555	102	4.78	74.3	171
Bronte ...	,, ...	1,478	128	4.03	39.6	164
Rose ...	Creole ...	1,387	80	3.47	48.1	164
Mary ...	Zebu ...	1,077	85	4.08	43.9	149
Diana ...	Holstein ...	5,582	189	4.11	229.5	340
Evelyn ...	,, ...	5,223	172	3.96	206 8	355
Duenna ...	,, ...	4,700	167	3.98	187 1	307
Darling ...	,, ...	4,186	139	4.25	177.9	326
Dawn ...	,, ...	3,953	164	3.62	143.1	308
Eileen ...	,, ...	3,569	133	4.18	149.2	331
December ...	,, ...	3,405	128	3.58	129.9	321
Daphne ...	,,	2,979	142	4.54	135.2	309

Note: The term "Holstein" above refers to animals with not less than three-eights Holstein bl
"Zebu" refers to animals showing marked Zebu characteristics.
"Creole" refers to animals of unknown ancestry which show no marked characteristics any particular breed.

EQUINES.

The mare foaled with a filly foal in May and was bred to a Ja shortly afterwards. At the end of December the following equines we on the Farm. 1 Brood mare, 1 yearling filly, 1 filly foal and 1 mu There were no outbreaks of colic and the animals were in good heal throughout the year.

GOATS.

The British Alpine buck goat was replaced by a Toggenberg bu which died during the year. A second Toggenberg buck was import from Barbados. The services during the year were as follows:

British Alpine buck	...	7
Toggenberg buck No. 1	...	3
,, ,, No. 2	...	13
Total		23

Pigs.

Six litters of pigs were born during the year giving a total of 46 lets. The following table gives details of each litter.

Litter No.	*Males*	*Females*	*Crushed etc*	*Litter total*
1	1	4	1	6
2	3	3	1	7
3	4	3	—	7
4	5	1	—	6
5	4	4	2	10
6	4	6	—	10
Totals	21	21	4	46

A whole litter of 8 piglets was eaten by the sow and 5 other piglets l from other causes. Some of the remaining 33 were sold during the r and the others were held for disposal in 1952.

Some of the breeding stock were culled on account of age and the owing were retained for breeding:—

Berkshire boar	(imported from U. K.)	...	1
,, ,,	(bred on the Farm)	...	1
,, gilts	,,	...	2
Berkshire/Large	,,	...	—
Black sows	,,	...	4
Grade Berkshire Sow	,,	...	1
	Total		9

There were 14 stud services during the year.

Poultry.

Eggs produced during the year amounted to 580 which are accounted as follows:

Sold for eating	...	414
,, ,, hatching	...	90
Incubated	...	55
Broken	...	10
Balance on hand	...	11
Total		580

R. E. Kelsick,
Agricultural Superintendent.

APPENDIX I.

STATEMENT OF RECEIPTS AND EXPENDITURE IN CONNECTION WITH THE MARKETING OF ALLOTTEES' CANES ON FAHIES, SADLERS AND HARRIS SETTLEMENTS, ST. KITTS.

		RECEIPTS.	EXPENDITURE.
		$	$
1st payment for canes			
	$		
Harris	4788.32		
Sadlers	13419.88		
Fahies	14057.93		32266.13
2nd payment for canes			
	$		
Harris	395.02		
Sadlers	989.03		
Fahies	1317.90		2701.95
3rd payment for canes			
	$		
Harris	290.19		
Sadlers	836.61		
Fahies	759.93		1886.73
Deductions for rent			
	$		
Harris	519.96		
Sadlers	1087.27		
Fahies	897.68		2504.91
Deductions for artificial manures supplied			
	$		
Harris	666.00		
Sadlers	1041.67		
Fahies	1766.96		3474.63
Deductions for agricultural tools supplied			
	$		
Harris	13.44		
Sadlers	38.44		
Fahies	65.94		117.82

APPENDIX I.—(*cont'd.*)

			RECEIPTS. $	EXPENDITURE. $
ductions for truckage of pen manure etc.				
		$		
Harris		214.00		
Sadlers		321.75		
Fahies		369.54		905.29
ductions for planting material supplied				
Fahies				31.20
ductions for marketing expenses				
		$		
Harris		2719.74		
Sadlers		5276.20		
Fahies		8011.08		16007.02
nus payment to labourers				
		$		
Harris		303.69		
Sadlers		618.29		
Fahies		869.44		1791.42
ditional marketing expenses and marketing commission				
		$		
Harris		289.26		
Sadlers		494.60		
Fahies		799.67		1583.53
iount recovered from ex-service man Henderson				120.63
Harris	976 tons 19 cwts. 3 qrs. canes		10320.76	
Sadlers	2283 tons 14 cwts.	,,	24124.72	
Fahies	2740 tons 4 cwts.	,,	28947.10	
Excess receipts				1.32
			63392.58	63392.58

APPENDIX II.

STATEMENT OF RECEIPTS AND EXPENDITURE IN CONNECTION WITH THE MARKETING OF PEASANTS' COTTON IN NEVIS—1950–51 crop.

CLEAN LINT.

	RECEIPTS. $	EXPENDITURE $
To amount brought forward from 1949–50	1245.99	
By expenses in cotton house		1539.98
temporary staff		413.97
purchase of seed from growers		468.27
cess		2795.36
export duty		2795.36
shipping expenses on private cotton (refunded)		158.68
pier dues		1004.40
porterage		253.24
lighterage		623.64
insurance		311.16
rent of Government warehouses		675.84
incidentals		28.84
grader's fee in U.K.		736.56
1st payment on clean seed cotton 868,364lb @ 20c. per lb.		173672.80
2nd payment @ 2c. per lb.		17367.28
Ginning and bailing 279,536lb @ 4½c.		12579.12
marketing commission (4%)		10562.80
deduction for damage to 11 bales by sea water		73.08
To refund of shipping expenses on private cotton	158.68	
sale of prime seed to Spooners 567,485lb @ $35.00 per ton	8866.95	
sale of lint in U.K.	254263.25	
sale of planting seed	940.02	
By final payment to growers— 868,364lb @ 4 cents		34734.56
amount carried forward		4679.95
	265474.89	265474.89

APPENDIX III.

STATEMENT OF RECEIPTS AND EXPENDITURE IN CONNECTION WITH THE MARKETING OF PEASANTS' COTTON IN NEVIS—1950–51 CROP.

STAINED COTTON.

	RECEIPTS. $	EXPENDITURE. $
o amount brought forward from 1949–50	27.56	
y expenses in cotton house		203.88
temporary staff		53.68
purchase of seed from growers		22.25
insurance		12.40
incidentals		3.80
rent of Government warehouses		92.16
1st payment on seed cotton 100,146lb @ 4c. per lb		4005.84
ginning and baling—33,180lb @ 5c. per lb		1659.00
marketing commission (4%)		535.18
o sale of seed to Spooners Factory 55,205lb @ $17.50 per ton	431.29	
sale of lint 33,060lb @ 39c. per lb	12893.40	
sale of small lots of lint	54.75	
y final payment to growers 100,146lb @ 6.5c. per lb		6509.49
payment to Mr. Haddon—29lb seed cotton @ 10.5c.		3.04
amount carried forward		326.28
	13407.00	13407.00

APPENDIX IV.

STATEMENT OF RECEIPTS AND EXPENDITURE IN CONNECTION WITH THE MARKETING OF CANES FROM NEVIS—1951 crop.

	RECEIPTS. $	EXPENDITURE. $
y first payment on 12,728 tons 18 cwts. 3qrs. 21lb canes @ $6.50 per ton		82,738.18
shipping expenses		5,359.23
clerical assistant		232.88
porterage on chains, slings & trucks		18.50
lighterage " " "		21.00

APPENDIX IV—(*cont'd.*)

wages of cane weighers		576.25
supplies and incidentals		122·59
wages of night watchman on pier		167.25
rental of land at Newcastle		8.00
lighterage on canes to St. Kitts		15200.34
truckage of canes to Charlestown (private truck)		218.38
truckage of canes to Charlestown (Govt. trucks)		3781.26
expenses making syrup		225.24
marketing commission (1%)		1248.83
To sale of canes to St. Kitts (Basseterre)		
Sugar Factory 12,217 tons 9 cwts.	124618.00	
sale of 587 gals. syrup manufactured at Hamilton	265.32	
final payment to growers 12,728 tons 18cwts. 3qrs. 21lb at $1.17 per ton		14892.93
excess receipts		72.46
	124883.32	124883.32

APPENDIX V.

PRINCIPAL EXPORTS FROM ST. KITTS, NEVIS AND ANGUILLA.

Commodity	1938		1949		1950		1951	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
		£		£		£		£
Sugar(tons) ...	26,481	204,835	33,781	918,110	38,646	1,120,102	38,542	1,148,928
Molasses (gals.) ...	600,828	8,770	1067807	15,023	1,007,647	23,343	1,223,531	31,652
Tomatoes (crates of 20lb)	2,921	445	...	...	...	...	...	...
Cotton Lint (bales of 400 lb) ...	1,824	45,193	1,478	78,730	674	44,495	882	62,134
Cotton seed, meal, cake and oil ...	...	1,204	...	962	...	1,871	...	757
Coconuts and coconut products ...	...	349	...	1,569	...	2,238	...	3,807
Livestock ...	...	1,309	...	1,366	...	3,350	...	3,534
Hides and Skins ...	...	230	...	792	...	668	...	1,146
Other Agricultural products ...	...	430	...	861	...	261	...	1,481
Salt (Brls. of 300 lb) ...	26,947	3,240	32,936	15,356	43,609	17,391	51,399	23,701
Total ...		266,005		1032769		1,213,719		1,277,140

APPENDIX V.—(*Cont'd.*)

VALUE OF IMPORTS OF CERTAIN COMMODITIES INTO ST. KITTS, NEVIS AND ANGUILLA IN HUNDREDS OF POUNDS STERLING (£ 00)

Foodstuffs for human consumption.	1938	1949	1950	1951
Wheaten flour ...	270	820	1233	1284
Pulses ...	4	47	19	27
Rice ...	113	214	283	288
Cornmeal (maize) ...	58	155	227	206
Bread & Biscuits ...	22	35	58	84
Butter & Substitutes ...	78	193	202	321
Lard & Substitutes ...	56	100	108	140
Edible oils ...	10	30	60	123
Preserved milk ...	2	51	171	210
Cheese ...	11	63	70	46
Preserved meat ...	63	279	401	514
Preserved fish ...	66	332	441	475
Fruit & Vegetables ...	24	82	96	147
Coffee ...	6	16	30	52
Tea ...	6	13	23	32
Cocoa ...	9	30	53	78
Sugar ...	43	58	57	28
Total ...	841	2518	3532	4085
Animal Feeding Stuffs ...	39	51	86	92
Fertilizers ...	185	431	714	626
Fertilizers (Volume in tons) ...	2665	1944	2731	2544

APPENDIX VI.

Latitude 17° 20′ N. METEOROLOGICAL REPORT FOR 1951. Heights above M.S.L. Barometer 157 feet. Rain Gauge 152 feet.

Longitude 62° 45′ W AGRICULTURAL DEPARTMENT, ST. KITTS.

Months.	Barometric Pressure reduced to Sea-Level, 32° Fahrenheit and corrected for gravity.					Temperatures. °F.								Vapour Pressure Ins. of Mercury.			Relative Humidity per cent.			Inches Rainfall.	No. of days on which rain fell.
	9 a.m.	3 p.m.	Mean.	Highest.	Lowest.	Maximum Means.	Minimum Means.	Maximum Extreme.	Minimum Extreme.	Mean for Month.	Range for Month.	Dew Point 9 a.m.	Dew Point 3 p.m.	9 a.m.	3 p.m.	Mean.	9 a.m.	3 p.m.	Mean.		
	Inches																				
January ...	30.044	29.965	30.005	30.136	29.834	79.6	70.2	83	66	74.9	17	66.4	66.4	.665	.668	.667	72.8	69.1	71.0	5.48	16
February ...	30.040	29.973	30.007	30.120	29.916	78.7	69.8	81	66	74.3	15	65.4	64 5	.635	.609	.622	70.7	63.4	67.1	1.30	6
March ...	30.030	29.944	29.987	30.118	29.860	80.5	69.5	83	65	75.0	18	64.0	64.0	.606	.597	.602	67.4	62.4	64.9	1.45	11
April ...	30.048	29.981	30.015	30.099	29.923	83.6	73.8	86	73	78.7	13	71.0	71.2	.783	.765	.774	71.0	69.9	70.5	1.15	8
May ...	30.027	29.958	29 993	30 141	29.854	84.8	75.7	87	73	80.3	14	73.0	72.8	.825	.804	.815	75.9	73.0	74.5	4.56	12
June ...	30.053	29.999	30.026	30.149	29.936	85.4	76.4	87	68	80.9	19	73.2	74.0	.834	.837	.836	76.6	67.1	71.9	3.72	8
July ...	30.044	30.001	30.023	30.087	29.970	85.2	76.2	86	73	80.7	13	74.0	75.0	.858	.887	.873	75.3	75.8	75.6	4.11	15
August ...	29.989	29.931	29.960	30.043	29.886	86.1	77.9	88	74	82.0	14	74.8	75.2	.863	.893	.878	73.5	76.0	74.8	4.69	9
September ...	29.969	29.895	29.932	30.030	29.815	86.3	76.7	90	74	81.5	16	74.0	74.2	.851	.851	.851	74.7	72.4	73.6	3.91	11
October ...	29.989	29 915	29.952	30.040	29.855	85.2	76.2	87	74	80.7	13	73.2	73.2	.818	.825	.822	72.3	69.0	70.7	4.41	10
November ...	29.992	29.906	29.949	30.039	29.873	83.9	73.6	85	72	78.8	13	73.2	73.0	.816	.828	.822	77.5	75.0	76.3	4.60	10
December ...	30.038	29.958	29.998	30.088	29.918	83.0	72.3	85	70	77.7	15	72.0	71.2	.789	.774	.782	76.7	75.3	76.0	9 68	11
Means ...	30.022	29.952	29.987	30.095	29.887	83.5	74.0	85.8	70.8	78.8	15.0	71.2	71.2	.779	.778	.779	73.7	70.7	72.2	49.06	127

REMARKS:—Highest Maximum Temperature ... 90° F on 7th September.
Lowest Minimum ,, ... 65° F on 6th March.
Highest Barometer (corr.) ... 30.136 on 16th January.
Lowest Barometer ,, ... 29.834 on 5th January.
Greatest Rainfall in 24 hours ... 3.48 inches on 5th December.

APPENDIX VII.

Return of Rainfall in St. Kitts for 1951.

Inches.

Station.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Fahies ..	7.59	2.93	1.71	1.33	8.38	4.55	7.24	8.99	12.82	7.13	8.05	15.22	85.94
Wingfield ...	9.65	5.10	2.40	2.60	5 83	4.75	4.90	8.55	9.20	6 30	6.10	12.85	78.23
Brothersons ...	6.90	0.87	1.13	1.20	7.63	5.15	6.34	14.20	10.29	5.33	6.21	8.98	74.23
Belmont ...	5.23	1.69	1.51	1.63	7.36	4.80	5.65	11.50	9.39	4.84	6.49	11.85	71.94
Belle Vue ...	10.05	1.97	1.83	1.62	7.48	2.57	5.69	4.35	4.66	4.91	9.85	16.25	71.23
Harris ...	6.19	1.40	1.77	3.70	7.76	3.61	5.78	4.66	7.93	4.30	8.28	13.73	69.11
Parsons ...	5.55	1.52	1.34	2.95	8.09	3.72	5.61	5.97	7.58	3.28	9.22	13.31	68.14
Willets ...	5.11	1.46	1.45	1.45	7.36	3.81	4.14	7.33	8.99	4.68	8 26	12.43	66.47
Lodge ...	8.65	2.10	1.07	1.68	5.90	4.35	6.48	4.52	7.97	4.45	4.59	13.05	64.81
Mansion ...	6.20	1.51	1.11	2.41	7.22	4.56	6.18	5.53	6.27	4.98	6.06	12.43	64.46
Cranstouns ...	4.79	3.01	2.02	1.22	6.30	3.95	5.20	7.79	7.90	5.04	7.28	10.07	64.57
Saddlers ...	5.96	1.37	1.63	3.06	6.66	2.73	5.22	4 [illegible]	6.82	4.08	8.77	12.10	62.84
Con Phipps ...	7.45	3.40	0.95	1.00	4.28	3.85	6.63	[illegible] 7	7.16	3.00	6.20	11.04	62.53
Mt. Pleasant ...	5.33	1.40	1.64	2.05	4.92	3.98	4.64	4.86	11.33	4.72	5.88	11.42	62.17
Bayfords ...	7.28	1.05	1.62	2.24	5.87	4.47	7.09	6.32	5.99	5.49	5.16	9.34	61.92
Bourkes	8.75	3.76	1.72	1.16	4.11	3.12	6.75	9.61	5.28	4.47	4.82	7.99	61.54
Milliken ...	6.78	2.16	1.22	1.84	5.51	3.53	6.22	5.95	6.55	4.24	4.86	11.86	60.72
Caines ...	4.68	1.03	1.56	2.16	5.72	3 72	4.81	6.97	6.33	2.87	9.24	11.55	60.64
Molineux ...	6.18	1.84	1.07	2.44	5.57	3.89	5.39	6.76	6·63	4.75	4.29	11.06	59.37
Estridge ..	5.32	1.55	0.98	2.58	5.37	3.11	5.28	5.30	8.18	3.34	5.09	12.04	58.14

APPENDIX VII.—(*Cont'd.*)

Return of Rainfall in St. Kitts for 1951.

Inches.

Station.	Jan.	Feb	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Pond ...	5.68	2.40	1.06	0.97	5.68	3.29	4.01	4.64	4.01	10.92	5.78	9.38	57.82
Stapleton ...	7.73	2.66	0.82	1.08	4.34	2.91	4.95	5.88	5.26	4.12	5.85	9.22	54.82
Whites ...	5.51	1.45	1.17	2.08	5.61	4.29	5.94	6.96	5.36	3.97	4.36	6.41	53.11
Camp ...	6.70	1.38	1.11	1.11	4.43	3.49	4.56	5.85	5.65	3.67	4.79	10.28	53.02
Brighton ...	5.69	1.69	0.98	0.99	5.32	3.87	5.94	4.54	6.04	3.58	3.62	10.43	52.69
Shadwell ...	5.66	1.38	1.26	1.59	5.15	3.51	4.39	4.55	5.04	4.27	5.12	9.62	51.54
Mills ...	7.16	0.80	1.17	1.72	4.34	2.20	4.20	4.26	6.98	4.09	4.38	9.38	50.68
West Farm ...	6.38	1.31	1.24	2.42	3.77	3.86	5.42	5.10	5.24	2.78	3.97	8.67	50.16
La Guerite ...	5.48	1.30	1.45	1.15	4.56	3.72	4.11	4.69	3.91	4.41	4.60	9.68	49.06
Basseterre Factory ...	5.06	0.89	1.00	1.30	4.57	2.95	4.28	4.00	3.02	3.80	5.80	12.04	48.71
Olivees ...	4.19	1.32	2.07	1.82	4.34	3.00	4.08	4.33	5.58	4.00	5.18	8.18	48.09
Needsmust ...	4.95	0.80	1.15	1.40	5.15	2.45	1.20	5.95	4.45	7.90	8.15	3.85	47.40
Cunningham ...	4.81	1.67	1.06	0.74	4.24	3.09	5.22	5.10	4.43	2.43	3.50	7.96	44.25
Douglas ...	5.73	1.56	0.80	1.39	3.88	2.46	4.50	3.79	3.74	3.81	4.67	7.85	44.18
L. Bourryeau ...	5.24	0.32	1.12	1.45	4.58	2.52	3.63	4.70	6.02	3.30	3.07	7.65	43.60
Hermitage ...	5.48	1.32	0.79	0.96	3.84	2.94	4.41	4.24	5.00	2.50	3.14	8.33	42.95
New Guinea ...	5.28	2.53	0.30	0.20	2.88	1.30	4.85	6.10	5.68	1.93	5.16	6.45	42.66
Buckleys ...	4.55	0.96	1.05	1.05	3.02	3.28	3.63	3.90	4.47	3.41	4.17	7.95	41.44
Canada ...	4.63	1.29	0.50	0.70	5.26	3.27	3.46	3.00	4.36	2.97	3.06	5.38	37.88

APPENDIX VII (*Cont'd.*)—AVERAGE RAINFALL 1914—1951.

In 1914 the average rainfall on	31	Stations was	52.92	in.
1915	„	„	32	„	75.59 „
1916	„	„	35	„	69.51 „
1917	„	„	33	„	43.53 „
1918	„	„	30	„	52.44 „
1919	„	„	29	„	62.84 „
1920	„	„	28	„	37.13 „
1921	„	„	29	„	47.09 „
1922	„	„	33	„	44.84 „
1923	„	„	30	„	34.58 „
1924	„	„	28	„	68.13 „
1925	„	„	32	„	43.54 „
1926	„	„	27	„	62.57 „
1927	„	„	29	„	64.36 „
1928	„	„	29	„	53.25 „
1929	„	„	28	„	52.55 „
1930	„	„	31	„	45.98 „
1931	„	„	31	„	57.60 „
1932	„	„	33	„	77.27 „
1933	„	„	36	„	63.97 „
1934	„	„	38	„	55.34 „
1935	„	„	39	„	48.89 „
1936	„	„	38	„	63.12 „
1937	„	„	37	„	44.78 „
1938	„	„	37	„	58.38 „
1939	„	„	37	„	45.69 „
1940	„	„	39	„	54.37 „
1941	„	„	40	„	50.92 „
1942	„	„	41	„	81.53 „
1943	„	„	40	„	66.95 „
1944	„	„	41	„	53.02 „
1945	„	„	41	„	46.74 „
1946	„	„	39	„	37.95 „
1947	„	„	41	„	48.22 „
1948	„	„	40	„	50.24 „
1949	„	„	41	„	62.15 „
1950	„	„	39	„	59.73 „
1951	„	„	39	„	57.51 „

The mean rainfall for 38 years is 54.68 inches, so that the rainfall for the year 1951 is 2.83 inches above the mean.

MEAN MONTHLY RAINFALL.

	1951 *Inches.*	1914—1951 *Inches.*
January ...	6.14	3.68
February ...	1.74	2.18
March ...	1.28	2.40
April ...	1.65	3.28
May ...	5.44	4.32
June ...	3.50	4.08
July ...	5.08	4.73
August ...	5.97	5.58
September ...	6.45	6.58
October ...	4.35	6.45
November ...	5.72	6.85
December ...	10.19	4.55
Annual Mean ...	57.51	54.68

PART III.

ANNUAL REPORT

OF THE

Montserrat Agricultural Department

FOR THE YEAR

1951.

ort of the Agricultural Department, Montserrat, Leeward Islands, for the year, 1951.

AGRICULTURAL PRODUCTION.

1. 1. Weather. Rainfall recorded at the Grove for 1951 was 9 inches. This is 11.7 inches higher than the mean for 52 years. ribution was favourable for agriculture in general, except for y spell in March and April which made it difficult for those who not plant at the beginning of the cotton planting season to blish a crop. In the Northern District, and at O'Garros in the hern District the dry spell set in early in February and before cotton planting season commenced.

1. 2. Cotton. The planting season for cotton began on the of February and ended on the 31st May. During this period 2 acres were planted and established with varying degrees of ess. Those who planted in February on the lighter soils (except the Far Northern District and O'Garros) during the favourable ers had good germination and an even stand. The young plants l up well during the dry weather which followed soon after ination and which lasted well into April. For those who ed the early rains another favourable opportunity did not occur l late April—early May. The Far Northern and Southern districts it dry before planting which resulted in just a meagre crop being blished.

The island's average yield of 195lb lint per acre, although 21lb the mean for the past 30 years, was considerably reduced by the s at the Northern and Southern areas.

Pink boll worm attack was less severe than in previous years on arly cotton. Some heavy infestations were reported in isolated s before harvesting on cotton which was planted in middle April.

The island's acreage as allocated under various systems of cotton ing is set out in Table I.

TABLE I.

	Share cropping Acres.	Peasants Rented or freehold Acres.	Estate Cultivation Acres.	Totals Acres.
1951 ...	679½	1514	978¼	3172
Average 1942/51 ...	995	1636	1042	3674
Highest 1942/51 ...	1790	2340	1265	5395
Lowest 1942/51 ...	638	1075	809	2521

TABLE II.

STATISTICS OF COTTON PRODUCTION.

	1942	1943	1944	1945	1946	1947	1948	1949	1950	1
Clean lint 1000lb	579	612	570	514	348	253	634	588	359	
Stained lint 1000lb	55	32	33	37	17	31	57	46	42	
Yields per acre of Total lint (lb)	142	161	196	146	145	107	200	166	112	1
Percentage Stained	8.6	5.6	5.4	6.7	4.6	10.7	8.3	7.3	10.4	

The following are prices received for Clean lint in 1951:—

GRADE	1	2x	2	3x	3	4x	4	and belo
	112	111	110	109	108	107	106	cents ℔ lb f.

The price paid locally for clean seed cotton was 28 cents per

1. 3. TOMATOES. Exports of tomatoes were made during year by the Government Marketing Depot and a few private shipp Countries to which these were exported and quantities exported set out in Table III.

Rainfall was favourable for this crop except in its last stag when lack of it reduced yields appreciably.

TABLE III.

EXPORTS OF TOMATOES.

Destination.	1950 lbs.	1951 lbs.
West Indies ...	60,093	86,730
Canada ...	201,660	218,370
Bermuda ...	11,040	32,430
Totals ...	272,793	337,530

The nett return for the tomatoes exported was 8.65 cents per lb. to wer. Average nett weight of crate was 33lbs.

1. 4. Limes. This crop is grown mainly on one group of ates on the Leeward side of the island but there are trees scattered e and there throughout the island. Table IV shows the quantities imes and lime products exported during the year.

TABLE IV.

Limes	*Lime Juice*	*Ecuelled Oil*	*Distilled Oil*
lbs.	Galls.	lbs.	lbs.
6,870	44,767	80	917

1. 5. Sugar Cane. About 200 acres is grown to sugar cane three estates situated in the centre of the island and another 10 es is grown by peasants in that locality. All cane grown is used the manufacture of rum. The Syndicate owning the rum tillery introduced from St. Kitts, through the Agricultural partment, 5,000 cuttings of each of the varieties B. 43337 and 41411 during the year. These were planted in a nursery for ltiplication.

1. 6. Food Crops. Locally grown foodstuffs were fairly ntiful for local consumption, and some exports, as shown below, re made.

Fruit and Vegetables Exported, 1951.

Bananas	810	lbs.
Beans, String	498	„
Beans, Bengal	1500	„
Bread—Fruit	13300	„
Carrots	73300	„
Coconuts	57340	„
Corn	1150	„
Cabbages	1190	„
Cucumber	120	„
Eschallots	20683	„
Limes	6870	„
Miscellaneous Fruit and Vegetables	19480	„
Onions	1490	„
Potatoes—Sweet	28240	„
Pears	7520	„
Pine Apples	610	„
Pumpkins	12510	„
Tomatoes	337530	„
Turnips	2400	„
Tamarinds	78722	„

1. 7. Livestock. The livestock in the island are nearly all ot on a small scale by individuals, mostly peasants. One estate a herd of working oxen.

Locally produced meat, eggs and poultry were inadequate meet the demands of the community. Milk was in fair supply.

The price of locally produced meat was increased from 18 cer to 22 cents per lb.

The control of the slaughter of female livestock by the Agricu tural Department for meat and the registration of all slaughterin continues.

Table V shows slaughterings recorded during 1951, and Tab VI shows livestock exported for the same period.

TABLE V.

Class	*Male.*	*Female.*	*Totals*
Cattle	245	118	363
Goats	218	245	463
Sheep	271	243	514
Pigs	191	46	237
Totals	925	652	1577

TABLE VI.

Class	*Quantity.*	*Value.*
		$
Asses	1	50.00
Horses	3	300.00
Poultry	9	40.00
Totals	13	390.00

WORK OF THE AGRICULTURAL DEPARTMENT.

2. 1. COTTON STATION. The production of pedigree seed the Montserrat Sea Island Strain is centralized at this statio Progress of this work with other investigational work for the ye under review is embodied in the report of the Cotton Adviser for t West Indies, Mr. J. V. Lochrie, O.B.E.

The investigational work on cotton included manurial trials Brown Earth, Shoal and Fresh Ash Soils, (one trial on Alluvial So at Trants estate had to be abandoned owing to a shortage of labo for weeding), a variety trial and two insecticide trials. The insect cide trials were aimed primarily to test the possibilities of controllin Pink Boll Worm with D.D.T. and other new insecticides. A sev year rotational trial was in it's fourth year.

The routine of seed multiplication was carried on, and 152,474lb cotton seed was sold to growers for planting of the island's crop. pplies of seed sent to other islands during the year are shown in ble VII.

TABLE VII.

Islands.	Pedigree seed. lbs.	3rd multiplication seed. lbs.	4th multiplication seed. lbs.
St. Kitts ...	150	...	...
Antigua ...	177	...	...
Nevis ...	310	30,852	13,972
Totals ...	637	30,852	13,972

Cotton Fertilizer Trials.

Fresh Ash Soil. This year the trial was laid down in Thompson's ld, Dagenham Estate. Past experience has indicated that Sulphate Ammonia applied at 400 lbs. per acre is no better than at 200 lbs. r acre on this soil, therefore applications were reduced to 200 lbs. d 100 lbs. per acre. There being little or no evidence of Phosphate ficiency, a comparison of Po vs Pl only was made. Phosphate and otash fertilizers were applied 6 days and Nitrogen fertilizer 23 days ter planting.

Yield in lbs. seed cotton per acre, and number of plants per plot e shown in Table VIII.

TABLE VIII.

	NI	*N2*	*P*	*NIP*	*N2P*	*O*	*Mean.*
ields (lbs.)	1688	1434	1753	1658	1709	1636	1646
o. of Plants	505	477	508	498	512	513	502

NI—Ammonium Sulphate at 100 lbs. per acre
N2— „ „ „ 200 „ „ „
P—Superphosphate „ 200 „ „ „
O—Control

There were six replicates.

Differences between treatments were small and not significant but ere was a high significant correlation between number of plants per ot and yield. The field had a dressing of bengal beans during the ose season and this probably masked the effect of nitrogen. Chemical

analysis of soil * samples taken from the control plots soon after pla ing, showed that the mean percentage of total N was 0.08. This te to be low and inadequate (below 0.12 per cent). Chemical analysis revealed available phosphate to be exceptionally high and available pot fairly high.

SHOAL AND BROWN EARTH SOILS. There is but little experimer evidence of the requirements of these soils, so treatments this year w confined to testing the responses to Nitrogen, Phosphate and Pot individually at two levels with 4 replicates. These were:—

P1—Superphosphate at 150 lbs. per acre

P2— „ „ 300 „ „ „

N1—Ammonium Sulphate at 100 lbs. per acre

N2— „ „ „ 200 „ „ „

K1—Potash at 100 lbs per acre

K2—Potash at 200 lbs. per acre

The trial on Brown Earth Soil was laid down at Amersham on Otway Peasant Land Settlement.

Yields in lbs. of seed Cotton per acre were:—

N1	*P1*	*K1*	*N2*	*P2*	*K2*	*Nil*	*Mean*
890	511	912	689	669	1426	614	816

On average, and in almost all four blocks K2 doubled the yield similarly K1 yielded almost 50% higher than the Nil. The appar effect of N1 stems from one big yielding Plot. Chemical analysis sh ed Potash to be 84 p.p.m.—56 p.p.m. short of being adequate. Su cane was planted on this soil from 1947 to 1949. No manures w applied to the cane. This may account for the high Potash deficien

The trial on Shoal Soil was carried out at Olveston's Estate. Yi in lbs. seed cotton per acre were as follows: –

N1	*P1*	*K1*	*N2*	*P2*	*K2*	*Nil*	*Mean*
270	395	505	330	329	461	400	385

*As in previous years, soil samples from all the fertilizer trials were kindly analysed by Pr Hardy, C.B.E., at the Imperial College of Tropical Agriculture, Trinidad

ant stand was uneven owing to the prolonged period between planting d supplying. The only feature was that plots with the highest num- r of plants yielded most.

The same fertilizers will be tried in a single replicate 3x3x3 design xt year on these two soil types.

PHOSPHATE PLACED TRIAL. This trial was also carried out on Shoal il on Olveston Estate and it's site was adjacent to the fertilizer trial ntioned above.

Treatments and their yield of seed cotton per acre were:—

	Yield.
Placed Superphosphate at 50 lbs. per acre	.... 802 lbs.
,, ,, ,, 100 ,, ,, ,,	.... 729 lbs.
Broadcast Superphosphate at 200 lbs. per acre	.... 761 lbs.
Control	.... 695 lbs.

There were 8 replicates.

The placed superphosphate was put in hoed holes, covered with 2" soil, then the seed was put on top and some distance to the side, and holes were then filled.

This trial suffered similarly to its adjacent fertilizer trial and like it, only feature was that the highest yielding plots were the plots with largest numbe. of plants from the first planting. *

SEVEN YEAR ROTATION TRIAL.

The Seven Year Rotation Trial (mentioned in the Department's evious Annual Reports) was in its fourth year, and this year all plots re planted to cotton.

Table IX shows crops planted in each treatment and yields per re of each crop, since the trial was started in 1948.

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* The early planted stands should have been uprooted at time of supplying and the trial anted, but weather conditions were so dry at the time, that it was feared the seeds would not inate. It so happened that germination took place after seed had been in the ground for four ks.

TABLE IX.

NOTE. Yields of Seed Cotton and Sweet potatoes are in l
Cane and Grass in tons.

Treatment.	1948 Cotton PM	1948 Cotton NIL	1949 Cotton PM	1949 Cotton NIL	1950 Cotton PM	1950 Cotton NIL	1951 Cotton PM	1951 Cotton NIL
A	1080	1287	763	617	360	324	797	69
B	1301	1157	914	745	Bengal Beans		785	63
C	Grass 23.7	23.0	Grass 15.1	13.9	Grass 9.4	8.0	Lima Bean	
					Sweet Potatoes 3248	2286	Cotton 648	46
D	Cane ...	...	Cane 20.9	21.1	Cane 4.3	3.9	Lima Bean	
					Sweet Potatoes 3087	2430	Cotton 362	20

(A in weed fallow during Cotton Close season)

(B in bare ,, ,, ,, ,, ,,)

Pen manure was applied to Cotton PM sub plots at 2 tons per a each year. Grass (C) received an application of pen manure to th PM sub plots in May, 1949 and Sugar cane (D) PM sub-plots receiv an application in August, 1949. Rates for both crops were 2 tons acre. Sweet Potatoes sub-plots were pen manured at 8 tons per ac

The following inferences can be made for yields of Seed Cotton 1951:—

PM better than Nil at 1%
A, B, and C better than D at 5%
A just fails to beat C at 5%

VARIETY TRIAL. A variety trial of six varieties was carried out Reids Hill Estate. The varieties were MSI, VH8, VH10, BD, V135 a NSI. Due to dry weather conditions, plant establishment was po V135 and NSI were worst affected and had to be left out. The resu are taken on 4 Blocks only instead of the original six as Blocks V a VI were very badly affected by poor germination.

Yields in lint per acre were:—

MSI	*VH10*	*VH8*	*BD*
208.3	278.3	182.6	261.3

Inferences:—VH10--BD and both were significantly higher than MSI and VH8.

However, owing to poor conditions of plant establishment the results should be viewed with some reserve.

Variety	Lint per boll grms.	Ginning %	Lint Index grms.	Lint Lengths mms.
MSI	0.948	31.58	5.680	47.22
VH10	0.940	31.29	5.705	49.00
VH8	0.654	25.41	4.320	53.77
BD	0.792	27.82	4.755	49.38
	*	*	*	*

*significant at 1%

Insecticide Trials.

This year two insecticide trials were carried out. One was situated at Richmond Estate and the other at Olveston. These trials were suggested and designed by Mr. J. V. Lochrie, O.B.E, primarily to try the effects of applications of various insecticides in controlling pink boll worm.

The trial at Richmond was put down in a well established field of cotton.

Treatments and their rates of application were:—

Label.	*Treatment.*	*Rate per Plot.*
L.	Lead Arsenate	1 ounce in 1 gall. water
A.	Agrocide Cotton Dust	8 ounces dust per plot
T.	Toxaphene Dust	8 ounces dust per plot
D.	DDT Dispersable Powder	2 ounces in one gallon water per plot.
E.	D.D.T. Emulsion	¼ pint in one gallon of water per plot.

Lead Arsenate was to be applied only in the event of an infestation by cotton leafworm. No infestation of this pest occurred. Plot size was 1/50 acre. There were 4 replicates.

The first treatment was applied when plants were starting to flower thence applications were weekly and on two occasions treatments had to be re-applied after having been partly washed off by rain. In all there were 15 applications.

Yields in lbs. seed cotton per acre were as follows:—

T.	*E.*	*D.*	*L.*	*A.*	*Mean.*
1503	1296	1513	1481	1704	1500

The trial was very even and the high average yield and low proportion of stain indicates that pest damage was slight and this was borne out by field observation.

The trial at Olveston was superimposed on the phosphate trial and the fertilizer trial which were adjacent to each other on that estate *(see* above). The treatments were the same as the Richmond trial except that Toxaphene dust was left out. Here again there was no cotton leaf worm infestation so lead arsenate was not used.

No control of pink boll worm was attained as infestation in all plots was heavy. (This cotton was planted late). Failure to control or partly control pink boll worm may be due to the frequent showers in August and September when applications were made. It would have been nearly impossible and impracticable to re-apply the treatments after each shower as rain fell nearly every day.

2. 2. Grove Agricultural Station. During the year this station distributed the following planting material propagated in its Nurseries:—

Budded Lime Trees	...	1,264
Budded Orange Trees	...	46
Decorative plants	...	1,200
Cabbage and Cauliflower plants	...	432
Yams (lbs.)	...	892
Sugar cane cuttings	...	600
Sweet potato vines	...	1,900
Fodder grass cuttings	...	11,000
Onion plants	...	61,560
Tomato plants	...	55,400

Tomato Variety Trial.

A tomato variety trial consisting of 18 of the best English and American varieties was carried out at this station during the year. The main objects of this trial were (*a*) to compare the English with the already know American varieties grown under the same conditions, and

(*b*) to select a variety most suitable for the English market and grown under local conditions.

The layout of the trial was three randomised blocks—plants 18" apart and tied to triangular stakes.

The main data obtained from this trial is summarised in Appendix C.

Sizing was done by passing the fruit through a grading board in which there were six circular holes with diameters of 45, 50, 56, 68 and 75 millimetres. A fruit passing through a 68 m.m. hole and not through a 60 m.m. hole would be in the column headed 68 in Appendix C.

The English varieties gave significantly higher yields than all the American varieties except Rutgers. The varieties (English) Exhibition, Devon Surprise, Harbinger and Essex Wonder were of such irregular shape and hollow texture that they would be hardly marketable anywhere. All the other English varieties would probably be suitable for the English Market.

Tomato Staking and Spacing Observational Trial.

This trial was carried out to test four methods of staking tomatoes —two already tried and two new methods. These were as follows:—

Treatment A. Plants 18" apart one stem per plant, triangle staked (this was the method successfully followed last season).

B. Plants 18" apart, one stem per plant, plants trained to strings. The strings were attached to a wire running horizontally about 4' from the ground.

C. Plants 24" apart, 2 stems per plant, triangle staked.

D. Plants 18" apart, one stem per plant. Straight staked. (This method was also successfully followed last season, but is not considered quite as good as A.)

Yields in lbs. shippable fruit per acre were:—

A	*B*	*C*	*D*
6062	6004	9795	4464

This trial was not designed so that the results would be given routine statistical analysis, but from observation, there was little variation within treatments therefore the following inference can be made.

C is better than A and B which are no better than each other but are better than D.

From observations and measurement of fruit in each treatment, i cannot be said that the treatments affected the size of fruit.

Extension and Development.

3. 1. Otway Land Settlement. The year 1951 was th seventh year of the Otway Land Settlement.

During the year, 543 acres were rented to Allottees, of this 35(acres were planted to cotton and 59 acres were rented as provisior holdings.

On the whole, settlers experienced a good cotton crop and a fai yield of tomatoes was produced by those settlers who planted this crop on their cotton holdings.

At the Parsons ginnery on the Settlement, the Agricultural Depart- ment bought 327,626 lbs. of clean seed cotton and from this shipped to the Raw Cotton Commission 68,376 lbs. clean lint. (Ginning out-turn 30.04%).

The proper maintenance of soil conservation grass barriers on holdings was encouraged by the Department. It is feared however, that some neglect and even destruction of these barriers was evident.

Some peasants have learnt from experience and instruction the value of compost for building up the fertility of their soils. There are, however, many who return nothing to their soil, thus diminishing the productivity of their holdings. More use and better preparation of compost by all settlers is desirable and necessary.

The 25 acres retained for the use of the Agricultural Department was utilized for experimental and nursery work. Food crops were also grown for feeding the Department's livestock. The fodder grasses respond favourably to the application of fertilizers and are now well established.

3. 2. Cotton Close Season Inspection. The Department continued to carry out the inspection of ginneries, Cotton Store Houses and fields during the close season for cotton. It is evident from the number of cotton plants and seed cotton found, that many growers and ginners are ignorant of, or careless about, the fact that they are chiefly responsible for the carry over of Pink Boll Worm to the next season.

3. 3. Disinfestation of Cotton Ginneries and Cotton Houses. Nearly all the Island's ginneries and cotton houses were disinfested by the Department, chiefly against pink boll worm—during the close season. Disinfestation was done by spraying the inside surfaces of the buildings with DDT Kerosene Emulsion (8 ozs. 100% DDT in 1 gallon Kerosene).

3. 4. Soil; Water and Forest Conservation. The acreage conserved by estates was increased during the year. The total area now conserved in the Island is approximately 1,800 acres. The reduction of slopes and the development of terraces where soil conserving barriers have been established for a few years is very evident.

There were several convictions for offences against the Forest Legislation in 1951. The benefits derived from forest, bush and trees on the steep sloping lands of Montserrat are important, and therefore indiscriminate cutting or felling of trees and clearing of lands must be checked.

3. 5. Credit. At the Otway Peasant Land Settlement the Department made advances to settlers while they were cultivating for their cotton crop, recovering the money advanced from payments for seed cotton.

3. 6. Marketing. The Government Marketing Depot packed and found export markets for most of the year's tomato crop. The balance of the crop was handled by a few private buyers. Table X shows quantities of tomatoes shipped by the Government Marketing Depot together with summary of expenses and returns per crate.

TABLE X.

Destinations.	Number of 30 lbs. crates.	Expenses per crate.	Nett receipts per crate.	Gross receipts per crate.
		$	$	$
Canada (St. John) ...	4664	1.25	2.63	3.88
Bermuda ...	300	1.46	6.29	7.75
British Guiana ...	149	2.60	4.51	7.11
Total ...	5113	5.31	13.43	18.74

The Government Marketing Depot imported and retailed vegetable seeds.

3. 7. Cold Storage Plant. The cold storage plant which is operated by the Agricultural Department and allied to the Marketing Depot, continued to manufacture ice and provide cool storage for fish, meat and other perishable articles. Fruit and vegetables awaiting export were also cold stored by this plant.

3. 8. Corn Mill. The Government Corn Mill is run by the Government Marketing Depot. During the year this mill ground or cracked 28.5 tons of corn.

3. 9. Inspection of Seed Cotton. The Department maintained the system of inspecting all seed cotton before purchase for ginning.

3. 10. Shipment of Lint. The Department handled shipment and made payments for cotton lint shipped to the Raw Cotton Commission in the United Kingdom.

3. 11. Livestock Improvement. In addition to the Stud Centres at Parsons and Brades, the Department farmed out, during the year two of its Nelthropp Bulls, at Gallaways, Blakes, Elberton and Rileys. Table XI shows services by the Department's Stud animals at the Stud Centres and farmed out area.

TABLE XI.

	Bulls.	Boars.	Rams.	Jack.
Brades ...	54	53	36	...
Parsons ...	56	9	8	28
Gallaways ...	23	...	...	...
Blakes ...	6	...	...	...
Elberton ...	12	...	...	...
Rileys ...	8	...	...	...
Grove ...	2	...	...	...
Totals ...	161	62	44	28

Meteorological and Seismo-Volcanological.

4. 1. The Department carried out the usual duties of Hurricane Observation. Two Jagger Earth Shock Meters were kept in operation during the year. Five slight shocks were recorded. Monthly visits by an officer of the Department to Gallaways Soufriere and Upper Gages Soufriere for the purpose of taking temperature readings and noting changes in activity, etc. were made. A separate report on Seismo-Volcanological Activity in Montserrat has been prepared by the Department.

Staff.

Due to the resignation of Mr. R. A. F. Dewar the duties of Manager of the Otway Peasant Land Settlement were taken over by Mr. J. A. Taylor from the 5th May.

Mr. A. S. Harper, Agricultural Assistant and Officer in charge of Cotton Work was on leave from 1st March to the 14th December, and Mr. F. A. Horner performed his duties during this period.

Mr. Hugh Mck. Jeffers, Junior Clerk, was granted one year study leave from the 1st September, to be spent at the Imperial College of Tropical Agriculture, Trinidad. Miss E. V. Tonge took up Mr. Jeffers's duties.

4th May, 1952.

APPENDIX A.

VALUE OF IMPORTS OF CERTAIN COMMODITIES INTO MONTSERRAT.

	Quantity lb	*Value* $
Wheaten flour ...	1411600	123,159
Pulses ...	1110	228
Rice ...	127440	7,689
Cornmeal ...	18224	1,898
Biscuits ...	30277	9,576
Butter Substitutes ...	12446	5,113
Butter ...	10990	10,454
Lard Substitutes ...	12612	4,918
Edible Oil ...	592 galls.	1,497
Preserved Milk ...	11962	5,020
Cheese ...	13709	8,041
Preserved Meat ...	53891	28,798
Preserved Fish ...	225192	51,050
Fruit and Vegetables ...	39689	3,244
Coffee ...	2197	3,218
Tea ...	1920	2,181
Cocoa ...	9625	5,604
Sugar ...	1465429	86,983
Animal Feeding Stuffs ...	14272	1,134
Total ...		359,805

APPENDIX B.

MONTHLY RAINFALL FIGURES AS RECORDED DURING 1951.

	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Totals.
Grove ...	10.08	2.34	.97	3.52	4.98	5.03	6.16	6.98	12.43	6.98	5.05	8.06	72.58
Richmond ...	7.06	1.58	.49	3.88	3.90	3.99	4.49	6.43	10.20	5.74	3.16	6.49	57.41
O'Garros ...	5.57	.48	.34	1.32	...	3.96	3.85	4.60	7.54	5.76	3.20	6.20	42.82
Olveston ...	9.96	2.39	1.11	1.83	6.52	4.94	5.19	6.84	10.10	5.56	5.25	9.39	69.08
Isles Bay ...	9.94	2.02	.78	1.87	5.14	4.77	5.10	6.53	10.35	4.36	5.05	8.30	64.21
Elberton ...	6.92	1.82	.50	3.54	3.73	3.31	3.45	6.13	8.38	4.24	3.82	5.85	51.69
Trants ...	5.07	1.89	.65	.71	4.44	2.86	3 09	4.70	8.50	4.48	4.05	5.25	45.69
Amersham ...	15.07	3.18	2.53	3.14	4.87	5.57	6.53	6.99	8.01	9.13	4.06	12.29	81.37
Bethel ...	5.68	.92	.84	1.05	4.44	2.66	2.47	3.48	7.80	6.52	3.33	5.56	44.75
Farms ...	5.25	2.62	.39	.41	3.40	2.51	2.89	4.68	7.88	6.08	3.43	4.09	43.63
Farrells ...	13.66	4.66	1.56	4.48	8.44	5.31	5.37	5.64	10.33	8.18	3.97	11.33	82.93
Brades ...	7.83	2.98	.76	1.27	6.88	2.11	3.16	3.87	9.14	6.05	4.75	12.92	61.72

SUMMARY OF DATA FROM TOMATO VARIETY TRIAL MONTSERRAT, 1950—1951.

Variety.	Rate of yield per acre		Percentage of sizes.						Remarks on Quality.		
	Gross lb	Shippable lbs.	.75	.68	.60	.56	.50	.45	Shape	Texture	Flavour
Exhibition ...	23,470	14,414	9.2	38.0	15.1	27.9	9.8	...	Flat	Hollow	Poor
Moneymaker ...	28,413	17,411	...	28.1	19.9	36.0	15.1	0.9	Round	Poor	Fair
Ailsa Craig ...	24,268	13,010	...	13.7	14.0	47.9	22.3	2.1	Round	Good	Pleasant
Fruit ...	28,445	15,530	21.0	54.3	12.8	9.2	2.7	...	Round	Good	Good
Victory ...	23,502	12,086	...	14.3	20.5	46.4	17.4	1.4	Good	Fair	Good
Devon Surprise ...	29,083	15,530	2 8	32.2	18.8	22.5	22.3	1.4	Corrugated	Hollow	Poor
Harbinger ...	27,999	15,626	...	16.7	15.5	46.0	18.4	2.4	Irregular	Poor	Fair
Essex Wonder ...	27,235	13,840	13.5	44.3	19.4	15.8	7.0	...	Flat	Hollow	Sweetish
Potentate ...	23,343	12,054	0.9	24.7	17.9	39.5	17.0	...	Round	Good	Fair
Market King ...	28,158	14,478	...	29.0	20.2	37.8	12.1	0.9	Corrugated	Fair	Fair
Sunrise ...	23,598	14,191	...	23.4	16.9	43.2	15.8	0.7	Round	Fair	Pleasant
Rutgers ...	16,997	19,109	48.5	38.6	9.0	3.1	0.4	...	Round	Good	Good
Grothens ...	24,937	11,926	51.2	39.4	6.7	2.0	0.7	...	Round	Fair	Fair
Bonny Best ...	15,689	7,621	37.3	46.0	8.6	8.1	...	...	Round	Good	Good
Southland ...	18,272	8,164	42.8	41.9	9.5	5.8	...	...	Round	Good	Good
Marglobe, Henderson	16,646	9,917	45.6	43.5	6.3	4.2	0.4	...	Round	Good	Good
Marglobe, Asgrow ...	16,837	9,567	30.4	53.9	10.1	5.6	...	...	Round	Good	Distinctive
Marglobe, Burpee ...	19,963	10,460	39.8	47.1	10.2	2.9	...	...	Round	Good	Pleasant

PART IV.

ANNUAL REPORT

OF THE

Virgin Islands Agricultural Department

FOR THE YEAR

1951.

CONTENTS.

Departmental Staff	...	Page	2
Weather Conditions	...	Paragraph	1
Production	...	,,	2
Sugar	...	,,	3
Cotton	...	,,	4
Limes	...	,,	5
Coconuts	...	,,	6
Food Production	...	,,	7
Livestock	...	,,	8
Livestock Exports	...	,,	9
Investigational Work	...	,,	10
Tortola Agricultural Station	...	,,	11
Cattle	...	,,	12
Horses	...	,,	13
Kentucky Jack Donkey	...	,,	14
Blackhead Persian Sheep	...	,,	15
Berkshire Pigs	...	,,	16
Anglo-Nubian Goats	...	,,	17
Service Records	...	,,	18
Improvements	...	,,	19
Distribution of Planting Material	...	,,	20
Soil and Water Conservation	...	,,	21
Credit and Marketing	...	,,	22
Shows	...	,,	23
Staff Training Courses	...	,,	24
Visits	...	,,	25
Acknowledgments	...	,,	26
Colonial Development & Welfare Schemes	...	,,	27
Summary of Legislation Changes	...	,,	28

APPENDICES.

Meteorological data	Appendix	I	...	Page	8
Exports	,,	II	...	,,	9
Imports	,,	III	...	,,	10

STAFF.

Agricultural Officer	...	M. WINTER
Agricultural Instructor	...	U. DAWSON
Petty Officer Class II	...	I. EVANS
Petty Officer Class II	...	R. HODGE
Petty Officer Class II	...	C. GUMBS

BRITISH VIRGIN ISLANDS.

eport of the Department of Agriculture for the year 1951.

Section I.

REVIEW OF AGRICULTURAL PRODUCTION:

1. Weather Conditions:

Weather conditions were not as favourable to Agriculture in the rgin Islands in 1951 as 1950. The first four months of the year ened with a severe drought. However, the rainfall for the following nths was evenly distributed. Fortunately, the hurricanes that were ated in the Eastern Caribbean passed the Virgin Islands without sing much damage.

Comparative rainfall figures are given in Appendix I.

2. Production:

Production is by individual agriculturists and produce is both for al consumption and export.

The land is owned in the most part by the cultivators; there have n no change in the local land tenure.

There has been a significant increase (compared with previous years) he amount of land put into cultivation throughout the Presidency, h for food and pasture.

There are no co-operative societies.

3. Sugar:

No sugar is manufactured in this Presidency.

The estimated acreage of sugar cane cultivated for the purpose of n manufacture has still shown a further decline to 50—70 acres as mpared with 65—90 acres in 1950.

4. Cotton:

No cotton is planted in this Presidency.

5. Limes:

A small quantity of fresh limes was exported to the American Virgi Islands.

6. Coconuts:

39,835 nuts were exported to the American Virgin Islands durin the year under review, and a considerable quantity have been used fo home consumption.

7. Food Production:

Vegetables were scarce for the first part of the year due to th drought experienced. However, ground provisions were available fo both local consumption and export throughout the year.

8. Livestock:

There is no Dairy Industry in the Presidency. With the exceptio of equines which are used as beasts of burden, the maintenance of livestoc is for the purpose of meat production.

Livestock were exported to the American Virgin Islands, the Frenc West Indies and to Dominica, British West Indies. Exports wer correspondingly greater to the American Virgin Islands and the Frenc West Indies as compared with 1950.

Sixty-eight (68) cattle died from January—April on account of th severe drought which was experienced. The cause of this loss was due t the lack of food. Water supply was adequate throughout the period.

The general health of the livestock in the Presidency was exceptio ally good for the year under review.

The vaccination of pigs against hog cholera continues to deman most of the time of the Department. It is assumed that this work wi continue indefinitely.

9. Livestock Exports:

(i) Numbers of Animals exported: The following are the num bers of animals exported during the year as compared with exports i 1950:—

Year:	*Cattle*:	*Sheep*:	*Goats*:	*Swine*:	*Mules*:
1950	836	300	1,368	446	—
1951	1,539 *	511	2,002	522	—

Note: *. Includes 267 head of cattle shipped to the French West Indies valued at $47,967.43, an 32 head shipped to Dominica, B.W.I. valued at $3,840.00.

(ii) Class and Sex Analysis of Exports (1951)

Cattle.*				Sheep.		Goats.			Swine.		
lls.	Strs.	Cows	Hfrs.	Rams	Ewes.	Bucks	Wths.	Does.	Boars	Barrows	Sows.
796	23	175	246	213	298	848	51	1103	45	177	300

*To U.S. Virgin Islands only.

The prices per pound on the hoof, here, are as follows:—

Cattle 8c.—10c., Sheep and Goats 8c., Swine 13c.

At St. Thomas, the gross prices received per pound on the hoof for vestock shipped from this Presidency are as follows:—

Old cattle 9c. & 10c.; Young cattle 11c. & 12c.; Sheep & Goats . & 10c; Pigs 17c.

All prices quoted above are in United States Currency.

Section II.

10. Investigational Work:

No investigational work was carried out during the year under review.

Section III.

EXTENSION AND DEVELOPMENT WORK.

11. Tortola Agricultural Station.

This Station is maintained and operated for the purpose of providing proved breeding stock. The small nursery maintained on the Station the only source of supply of improved planting material in the residency.

The paddocks on the Station comprises sixty-eight (68) acres of nd utilized as follows:—

Guinea Grass Paddocks	$38\frac{3}{4}$ acres
Elephant Grass Paddocks	$9\frac{1}{2}$,,
Guatemala Grass Paddocks	$1\frac{3}{4}$,,
Mixed Paddocks	17 ,,
Arable	1 acre
Total	68 acres

A total of four heifers and six bulls were sold during the year und review; of which three heifers and one bull were sold to the Agricultu Department, Antigua; five bulls to farmers for use as sires, and t remaining heifer was sold for slaughter as she was incapable of breedi (Freemartin).

12. Cattle:

Seven (7) $\frac{3}{4}$ Red Poll by $\frac{1}{4}$ Senegal calves were born on the Stati during the year under review, *viz* five heifers and two bulls.

The health of the cattle has been extremely good.

Milk Yields $\frac{3}{4}$ Red Poll x $\frac{1}{4}$ Senegal Cattle:

Completed Lactations:

Name of Animal:	*Lactation Commenced:*	*No. of days in milk.*	*To lb.*
Lily (B)	15th October, 1950	256	2,5
Independence (A)	27th October, 1950	246	3,1
Augusta (A)	11th December, 1950	208	2,3

Note:— (A) Means 3rd lactation: (B) means 2nd lactation:

All calves from cows whose yields are recorded above were separat at birth and pail fed. All the calves are doing remarkably well.

The herd now comprises:—

Bulls:	*Bull Calves:*	*Cows:*	*Heifers:*	*Tote*
3	3	8	13	27

13. Horses:

The Thoroughbred Stallion which is kept for stud purposes has r mained in very good condition. Considerable use is being made of th animal, and satisfactory results are being obtained.

Riding horses are also maintained on the Station. During the ye under review one additional horse was purchased by the Department f the use of the additional Instructor. Three (3) horses are also maintain on the Station for Government Officers who are required to travel duty.

14. Kentucky Jack Donkey.

This animal remained in excellent condition throughout the ye

As will be observed in paragraph 18, this animal has been us on both donkeys as well as horses; the results have been satisfactory.

15. Blackhead Persian Sheep:

These animals have done well. Four (4) lambs were born during the year; one ewe and three rams. Three rams were also sold to farmers for stud purposes. Efforts are being made to purchase one pair of pure bred Blackhead Persian lambs from the Central Experiment Station, Antigua. It is hoped that they will arrive early in 1952.

16. Berkshire Pigs:

One Gilt arrived from the Central Experiment Station, Antigua early in the year under review; she was mated five months after arrival and gave birth to three piglets in December, (2 gilts and one boar). One gilt and one boar will be kept for replacements.

17. Anglo-Nubian Goats:

The old buck is in very good condition. The young buck that was imported during last year died. One pair of $\frac{3}{4}$ Nubian kids were born during the year; both will be retained by the Department for breeding purposes.

18. Service Records:

Services of Government Stud animals for the year are as follows:—

Name:		*Number:*
Stallion "Wise Medico"	...	40
Jack "Col Dunway" (15 horses, 5 donkeys)	...	20
$\frac{3}{4}$ Red Poll x $\frac{1}{4}$ Senegal Bull "Arthur"	...	13
" " " " " " "Commando"	...	3
Blackhead Persian Ram sheep	...	1
Anglo-Nubian Buck Goat	...	7
Berkshire Boar	...	16

The rations and management for the various classes of livestock maintained on the Station remains the same as stated in last year's Report.

19. Improvements:

The two (2) remaining dipping vats have been repaired. Provision was made in the Estimates for the purchase of another scale; it is expected that this scale will arrive early in 1952 and be placed at West End, Tortola.

20. Distribution of Planting Material:

The propagation of ornamental and economic plants was carried out in the small nursery that is maintained at the Station.

Distribution and/or sales of plants, seed etc. during the year ar detailed below:—

Yam	600 lbs.
Sweet Potato Cuttings (variety B44)	4500
Elephant Grass Cuttings	3000
Pine apple slips	300
Onion slips	10000
Tomato slips	102 doz.
Cabbage slips	293 ,,
Pepper slips	2 ,,
Sugar cane Cuttings	1000
Cassava Cuttings	2000
Ornamental Plants	80

21. Soil and Water Conservation:

Contour Bunds which are already established were maintained.

It is regretted that only the giving of advice to farmers through personal visits could be done. The staffing difficulties referred to in last year's Report reflected on the efficiency of this work.

22. Credit and Marketing:

As stated in last year's Report there is no organized source of Agricultural credit and marketing facilities in this Presidency. However early in 1952, Government intends to make available to farmers Agricultural credit for the purpose of pasture improvement. The sum of $14,000 U. S. has already been approved by the Secretary of State under a Colonial Development and Welfare Scheme.

23. Shows:

The annual Agricultural Shows were held at the Valley, Virgin Gorda, Great Harbour, Jost Van Dykes and at the Agricultural Station, Tortola, and they were very successful.

24. Staff Training Courses:

No courses were held during the year under review.

25. Visits:

His Honour the Commissioner visited the Department on several occasions.

Dr. L. R. Hutson and Dr. S. L. Hignett, of the Wellcome Veterinary esearch Station visited the Department on the 23rd February to make vestigations on the fertility of the Nelthrop cattle that are maintained n the Station.

Dr. R. von Decken-Luers, the Veterinary Officer of St. Thomas and t. Croix, American Virgin Islands and Dr. Echegaray of the Bureau of nimal Industry, San Juan, Puerto Rico, visited the Department on the 1st October.

26. Acknowledgements.

It is with pleasure that I record the thanks and appreciation of the aff of the Department to all those who have assisted and co-operated in ne work of the Department.

Special mention should be made of His Excellency the Governor for is very valuable assistance in connection with the Agricultural Shows.

The Department is indebted to Doctors von Decken-Luers, Echegaray nd L. R. Hutson who have given valuable help in judging of Livestock nd pastures at the Shows.

The thanks of the Department is also extended to the many residents nd farmers for their co-operation with the Department in making the gricultural Shows successful.

Finally I wish to pay tribute to the staff of the Department for their ood work.

Section IV:

27. Colonial Development and Welfare Schemes:

Two (2) Development and Welfare Schemes have been approved by ne Secretary of State during the year under review and will go into peration in 1952. These Schemes are D—1688; Agricultural Credit und which provides the sum of $24,000 and D—1689; Purchase of ivestock which provides the sum of $9,600.

Section V:

23. Summary of Legislation Changes:

There has been no change in the legislation dealing with livestock or ants during the year under review.

Malcolm Winter,
Agricultural Officer.

APPENDIX I.

Meteorological Data.

Month.	1942.	1943.	1944.	1945.	1946.	1947.	1948.	1949.	1950.	1951.	10 year monthly average.
January ...	3·33	6·35	2.80	2.02	2.83	5.65	2.83	1.45	5.04	1.74	3.40
February ...	1·47	1·79	1.36	2.17	2.52	3.09	1.60	2.59	9.32	.97	2.68
March ...	4·10	2·32	.84	.58	1.00	1.55	.84	4.29	1.69	.46	1.76
April ...	8·32	1·70	1.57	1.97	.61	.61	1.52	1.27	3.82	1.11	2.25
May ...	2·68	8·22	8.13	7.12	3.46	2.84	5.42	2.70	.20	9.56	5.03
June ...	3·21	3·98	2.67	1.88	1.53	2.56	6.00	7.06	1.67	5.37	3.59
July ...	7·67	4·44	6.15	4.92	3.17	1.11	5.66	3.95	3.13	4.91	4.51
August ...	6·88	5·40	4.98	6.06	3.30	2.84	3.83	5.18	7.85	4.58	5.09
September ...	5·77	3·83	8.23	3.41	7.36	17.38	4.29	12.38	7.35	10.80	8.07
October ...	4·23	4·24	5.34	6.79	14.24	10.05	8.19	7.90	10.41	6.06	7.74
November ...	12·04	1·21	5.30	5.74	4.25	2.52	6.68	3.68	7.67	3.50	5.25
December ...	3·12	5·50	3.94	1.43	1.66	4.39	3.97	6.51	1.93	7.36	3.98
Total ...	62·82	48·98	51.31	44.09	45.93	54.59	51.00	58.96	60.08	56.42	53.35
10 year mean ...											53.35

APPENDIX II.

PRINCIPAL EXPORTS FROM THE BRITISH VIRGIN ISLANDS.

Commodity.	1947		1948		1949		1950		1951		Average value for previous four years.
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	
		£		£		£		£		£	
Limes ...		37		99		54		34		152	56
Tomatoes ...		20		40		7		11		9	20
Coconuts ...		503		77		58		519		603	289
Livestock ...		20813		21314		24283		17974		57903	21096
Rum ...	4	2	90	28		...		...	20	14	7
Other Agricultural Products*		6117		6374		7084		7219		7219	6875
Fish ...		2048		1890		1700		1614		1609	1813
Total ...		29540		29822		33186		28079		67509	30156

*Includes forest products, fruit, vegetables and ground provisions

APPENDIX III.

VALUE OF IMPORTS OF CERTAIN COMMODITIES INTO THE BRITISH VIRGIN ISLANDS

in hundreds of pounds sterling (£ 00).

Foodstuffs for Human consumption	*1947.*	*1948.*	*1949.*	*1950.*	*1951.*	*Average for previous 4 years*
Wheaten Flour	114	115	107	131	144	117
Pulses	2	2	3	3	4	2
Rice	4	5	8	9	16	6
Cornmeal (Maize)	11	10	9	10	9	10
Bread and Biscuits	4	4	4	6		4
Butter and Substitutes	6	7	9	12	11	8
Lard and Substitutes	9	12	13	16	18	12
Edible Oils	2	1	2	2	2	2
Preserved Milk	3	3	4	6	8	4
Cheese	5	5	6	8	7	6
Preserved Meat	5	8	10	12	13	9
Preserved Fish	1	3	4	6	7	3
Fruit and Vegetables	6	6	9	15	11	9
Coffee	2	2	3	3	3	2
Tea	1	1	1	1	1	1
Cocoa	1	2	2	4	4	2
Sugar	51	53	63	65	77	58
Total	227	239	256	309	371	255
Animal Feeding Stuffs	1	2	2	4	7	2
Fertilizers	—	—	—	—	—	—

PART V.

ANNUAL REPORT

OF THE

Chief Veterinary Officer,

Leeward Islands,

FOR THE YEAR

1951.

Report by the Chief Veterinary Officer, Leeward Islands Colony on Animal Health during the Year 1951.

A. Livestock in the Colony.

The basic policy related to the livestock industry, namely its maintenance as an integral part of a balanced agricultural system, was continued.

The only official figures available as to the numbers and different classes of livestock are those of the 1946 Census, as follows:—

Cattle	*Sheep*	*Goats*	*Swine*	*Horses*	*Poultry*
18,959	11,699	15,884	5,878	2,989	66,274

It can be more or less assumed that these figures would represent the average number during 1951, as the birth, death and slaughter rates have not varied considerably during the preceding years and there have been no losses from Epizootics.

The general position with regard to livestock in the Colony is discussed elsewhere in the several reports of the Agricultural Departments and further reference is considered unnecessary other than to state that the veterinary section is connected with animal husbandry in all its aspects.

B. Livestock Improvements.

Elsewhere in the Presidential Agricultural Reports detailed reference is made to the measures directed towards the general improvement in the breeding and management of livestock being implemented principally through the several agricultural Stations.

C. General position with regard to Animal Health.

It is very gratifying to record that the Colony continues to be free from the majority of the serious infectious and contagious diseases which exact such heavy toll in other countries. During the year under review, the average standard of animal health was maintained and no new diseases were recorded.

There has been no recurrence of Anthrax in Nevis since the 1948 outbreak, nor of Hog Cholera in the Virgin Islands since 1949.

A special investigation into a recently observed breeding problem in the cattle herd at the Central Experiment Station, Antigua, was carried out by Mr. S. L. Hignett of the Wellcome Veterinary Research Institute, England. A summary of the findings and recommendations is made under the appropriate section.

The following is a summary of the observed and reported diseases:—

(I) Infectious and Contagious Diseases.

Class of Animal	*Bacterial*	*Virus*	*Spirochæ-tal*	*Protozoan*	*Fungoi*
Horsekind	Tetanus				
Cattle	Tuberculosis Mastitis			Piroplasmosis Coccidiosis Anaplasmosis	
Goats	Mastitis				
Swine	Tuberculosis				
Dogs		Distemper	Lepto-spirosis	Piroplasmosis	
Poultry	Fowl Typhoid	Leucosis Complex		Coccidiosis	
Cats		Infectious Feline Enteritis			

(II) Parasitism.

In horsekind, cattle, sheep, goats, swine, poultry, cats and dogs:—

(*a*) Helminthiasis (*b*) Ecto-parasites.

(III) Diseases of the Respiratory System.

Coryza, Epistaxis, Pneumonia (verminous).

(IV) Diseases of the Alimentary System.

Bovine and Equine Indigestion of various forms.

(V) Diseases of the Skin.

Eczema, and Non-parasitic Dermatitis.

(VI) Miscellaneous Diseases.

These include Traumatism; Lameness, fractures, Urticaria; Poisoning (lead); Papillomata; Paraphimosis.

(VII) Deficiency Diseases.

Including Avitaminosis; Phosphorus Deficiency; simple goitre in the new born (calves).

REVIEW OF DISEASES.

The following call for comment:—

(*a*) Bovine Tuberculosis.

The position with regard to the incidence of his disease in the Colony is as follows:—

Antigua.

It is gratifying to record that the downward incidence of this disease ontinues with the gradual elimination of the foci of infection in working imals on the sugar estates.

Under the Milk Production Order No. 50, there were four herds nder supervision during the year which were subjected to tuberculin sting, as follows:—

Herd No. 1	218 animals tested		1 Reactor.
„ „ 2	42	„ „	No Reactors.
„ „ 3	89	„ „	1 Reactor.
„ „ 4	60	„ „	No Reactors.
	409		

Percentage of Reactors —.49%

St. Kitts-Nevis-Anguilla.

The continuation of tuberculin testing in selected areas was carried it. Four hundred and sixty-two (462) animals were tested—ten (10) actors were found, a percentage of 2.2%

Montserrat.

The position remains unchanged, namely, the incidence of the sease is known to be negligible. No cattle can be introduced into the land except accompanied by a negative tuberculin test certificate.

Virgin Islands.

This area remains as one accredited free of the disease.

(*b*) Breeding Problems.

Central Experiment Station, Antigua.

Mr. S. L. Hignett, B.Sc., M.R.C.V.S., of the Wellcome Veteri- ry Research Station, England, arrived in Antigua in February to carry it an investigatinn into breeding problems being encountered in the NELTHROPP" herd of cattle at the above Station. This investiga- on was prompted by reason of several of the cows showing a reduced ilk yield, temporary infertility and in some cases, the assumption of asculine characteristics.

Mr. Hignett remained in the Colony from 4th February—5th March. During this period, he carried out a comprehensive investigation which included:—

(*a*) the analysis of service, calving and milk production records.
(*b*) studies on geological formation and soil types.
(*c*) climatic conditions.
(*d*) clinical examinations of cattle.
(*e*) collection of material for chemical and pathological studies.
(*f*) feeding experiments.
(*g*) grazing habits of cattle.
(*h*) inspection of other livestock units on the Island as well as a visit to St. Croix, United States Virgin Island, the home of the Nelthropp cattle, also the British Virgin Islands.

The conclusions reached by Mr. Hignett may be summarised as follows:—

(1) A problem of temporary infertility exists due largely to a conditioned phosphorous deficiency.

(2) The existence of "adrenal virilism" which can be attributed to a genetical factor which is activated by some stress. There are at least three stresses to which the animals may be subjected:—

(*a*) lactational stress.
(*b*) the stress associated with short calving intervals.
(*c*) a high intake of calcium and magnesium interfering with the utilisation of phosphorous and perhaps other nutritional factors essential for reproduction and lactation.

Mr. Hignett made certain recommendations, all of which are being carried out. These were confined mostly to management, including nutrition; trial experiments are being carried out in the application of potash fertilizer to hillside pastures as a possible means of lowering herbage calcium content; regular analyses of blood samples for inorganic phosphorus are being carried out and material as available is being sent to Mr. Hignett for histo-pathological studies.

Mr. Hignett states that the problem presents a number of research projects which might well throw a great deal of light on the effect of management and feeding on the endocrine system of cattle and his investigations are not yet completed.

(*c*) Canine Piroplasmosis.

The first recorded case of this disease was observed during the year. This occurred in a Labrador puppy, 3½ months old, born of parents imported from the U.S.A. This case is of interest not only by reason of

eing an initial record of the disease in the Colony, but demonstrates hat the incidence is present in the native dog population which must ossess a well established inmunity.

(*d*) Simple Goitre.

Two (2) cases were observed in new born calves at the Central Exeriment Station, Antigua. This condition is known to be associated vith an iodine deficiency. A report on these is being prepared for ublication.

D. General.

(*a*) Veterinary Services.

The availability of the Veterinary Officer in St. Kitts-Nevis-Anguilla for attendance on livestock other than that belonging to Govrnment was continued during the year. The services of the Chief Veterinary Officer in a similar capacity were available elsewhere in the Colony.

(*b*) Visits.

The following routine and special visits were made by the Chief Veterinary Officer:—

St. Croix, U.S.V.I. and British Virgin Islands 20th — 26th February.

St. Lucia 3rd — 14th April—Member of Team of Experts appointed to nvestigate "Agricultural Development Possibilities" in St. Lucia.

Barbados 25th — 30th June — Requested visit by Agricultural Adviser or further discussions St. Lucia.

Montserrat 22nd — 29th October.

British Virgin Islands 31st October—10th November.

Montserrat 21st — 26th November.

Barbados 15th — 20th December—Colony Delegate to meeting of the Advisory Council on Agriculture, Animal Health and Husbandry, Forestry and Fisheries.

(*c*) Special Duties.

During the absence of the Meat Inspector, Antigua, on leave, the Chief Veterinary Officer carried out the daily routine meat Inspection at

the Public Market during the month of July and was available as referee during August and September.

(*d*) Visitors.

Mr. R. J. Simmons, Adviser on Animal Health, Colonial Office, London, visited the Colony during the period of 8th—20th February.

Mr. S. L. Hignett, Wellcome Veterinary Research Station, England, visited the Colony during the period 4th February—5th March.

E. Animal Diseases Reporting Service.

This service, under the auspices of the Caribbean Commission, was operative during the year and monthly returns were submitted. The annual summary of infectious and contagious diseases is as follows:—

Bovine Tuberculosis (% reactors)		1.5%
Anaplasmosis		8 cases
Piroplasmosis	(Bovine)	3 "
"	(Canine)	1 "
Distemper	(Canine)	2 "
Leptospirosis	(Canine)	2 "
Ulcerative lymphangitis		2 "

F. Livestock Legislation.

The following were enacted during the year:—

Antigua.

1. S. R. & O. No. 3 of 1951 — Importation of Animals (Amendment) Rules, 1951. Making Coolidge Field a port of entry.

2. S. R. & O. No. 8 of 1951. Importation of Animals Prohibition (Parrots) (Revocation) Order, 1951.

Montserrat — Nil.

Virgin Islands — Nil.

St. Kitts-Nevis-Anguilla — Nil.

G. Laboratory and Investigational Work.

This was carried out both in Antigua and St. Kitts-Nevis and Anguilla. The former included:—

(1) blood films for microscopic examination and diagnosis.

(2) urine samples, routine tests as well as mare's urine for diagnosis of pregnancy.

(3) Milk samples for butter fat determination and diagnosis of Mastitis.

(4) Faecal examinations for parasitic ova.

(5) Seminal fluid for microscopic study.

Investigational work was confined mostly to studies on nutritional factors as affecting the reproduction in cattle.

L. R. Hutson,
Chief Veterinary Officer.

PART VI.

ANNUAL REPORT

OF THE

St. Kitts-Nevis-Anguilla

Veterinary Department

FOR THE YEAR

1951.

ST. KITTS, NEVIS & ANGUILLA.

VETERINARY DEPARTMENT.

Annual Report for 1951.

The Presidency was free from any serious contagious or infectious diseases during the year. Many of these diseases exist in the neighbouring islands such as Swine Fever, Rabies, Brucellosis. It is a matter of constant vigilance to keep these diseases from entering the islands which apart from Anthrax has no serious disease problem.

This is the fourth successive year that the Presidency has remained free from Anthrax following the outbreak in Nevis during 1948. Preseasonal immunisation of livestock in endemic anthrax areas in Nevis is now carried out as a routine measure annually.

Bayfords remained free of any serious outbreaks during the year. Constant use of anthelmintics is necessary to keep the young stock free of parasites. There were several cases of Anaplasmosis and Piroplasmosis which were unknown previously. It is possible that the diseases were introduced by the imported Jersey cattle from Jamaica.

A Parasite Survey and a Parasite Control Scheme were started towards the end of the year. The most serious and constant problems of these islands is internal parasitism.

A Bovine Tuberculosis Survey was completed. This is the first time a comprehensive survey has been performed since 1944. The results were encouraging and it is felt that it would not be a difficult task to completely eradicate this disease.

Routine supervision of meat inspection and the examination of animals prior to importation and exportation continued during the year. Other routine duties included the issue of slaughter permits, permits for the exportation of hides, clinical cases, and the maintenance of the laboratory diagnostic service.

Two new appointments were made during the year, a Senior Stock Inspector stationed in Nevis, and a Stock Inspector stationed in St. Kitts.

Internal parasitism remains a serious problem in St. Kitts, although more use is being made of anthelmintics. The use of Phenothiazine owing to the increased value of animals and animal products is now regarded as a necessity. External parasites are effectively controlled in areas where stock owners are using BHC and DDT preparations.

Coccidiosis has been recognised in calves and poultry and the incidence of the disease in the latter is high. Sulphamezathine (16% solution) has proved very satisfactory in the treatment of the disease in poultry. This drug and also Sulphadiazine is found effective for ruminants.

Dirofilaria immitis in dogs was recognised for the first time in St. Kitts. I have to thank Dr. G. Lapage of Cambridge University for his kind assistance and advice regarding the recognition of this parasite.

There was one severe outbreak of Leptospiral Jaundice in dogs during the year. The mortality was 80%

CENSUS FIGURES (1946)

Island.	Cattle.	Horses.	Mules.	Donkeys	Swine.	Sheep.	Goats.	Poultry.
St. Kitts ...	3,175	301	373	163	1,003	670	392	5,518
Nevis ...	2,406	371	130	1,048	1,829	3,548	2,251	9,886
Anguilla ...	813	10	2	118	823	2,752	1,463	4,096
Presidential Total ...	6,394	682	505	1,779	3,655	6,970	4,206	19,500

DISEASE CONTROL.

In addition to numerous cases attended to as a routine measure, the following deserve special mention. Those diseases marked with an asterisk were diagnosed and confirmed for the first time in St. Kitts to the knowledge of the writer.

Disease	*Animals affected*
Parasitic gastro-enteritis	Cattle, sheep and goats.
Mastitis	Cattle.
Coccidiosis	Calves, poultry.
Anaplasmosis	Cattle
Piroplasmosis	Cattle
Dirofilaria immitis (Heartworm)	Dog.
Leptospiral Jaundice	Dog.
Infectious hepatitis (?)	Dog.
Distemper	Dog.
Tuberculosis	Survey.

Anaplasmosis and Piroplasmosis: Both these diseases occurred fairly regularly during the year at Bayfords. It is considered that the disease made its appearance due to the sudden cessation of dipping

operations for some weeks. Up to that date it had no doubt been kept under control by regular dipping. Piroparv, Pirevan, and Sodium Cacodylate were used with a fair degree of success.

Heartworm: Heartworm (Dirofilaria immitis) was diagnosed in several dogs. The only symptoms noted in all cases were dermatitis and intense skin irritation. The microfilariæ were demonstrated by the method described by Morris, Duhel and Green and is as follows: withdraw 1 cc. of blood from a vein and immediately add 5 cc of a 2% acetic acid solution; mix thoroughly and centrifuge 3—5 minutes, decant the supernatent fluid and place a drop of the sediment on a slide, cover with a cover slip and examine. It was found that staining with Wright's or Giemsa's stain after drying the film, when the microfilariæ were stained blue, assisted identification under low power. Whole blood smears were not found effective. Treatment with several drugs was tried and Diethylcarbamazine (Caricide, Banocide) was found to be very effective.

Parasite Survey and Control.

The survey was commenced during the latter part of the year and the following list is by no means complete. Many specimens are still waiting identification at the present time.

	A. Dog	*Habitat.*
1.	Ancylostoma caninum	Small intestine.
2.	Toxocara canis.	,, ,,
3.	Toxascaris leonina.	,, ,,
4.	Dipilidium caninum.	,, ,,
5.	Dirofilaria immitis.	Heart, pulmonary artery.
6.	Tænia sp.	Small intestine.

	B. Cattle	
1.	Hæmonchus contortus.	Abomasum.
2.	Trichostrongylus sp.	,,
3.	Anaplasma centrale.	Red blood cells.
4.	Anaplasma marginale.	,, ,, ,,
5.	Babesia bigeminum.	,, ,, ,,
6.	Eimeria sp.	Intestine.

	C. Sheep and Goats	
1.	Hæmonchus contortus.	Abomasum.
2.	Oesophagostomum sp.	Cæcum, colon.
3.	Trichostrongylus sp.	Abomasum, small intestine.

D. Poultry

1. Ascaridia galli. Small intestine.
2. Emieria sp. ,, ,,
3. Oxyspirua mansoni. Eye.

I am indebted to Dr. Lapage of Cambridge University and to the Veterinary Department, Jamaica, for their assistance with the identification of several of the parasites.

A parasite control scheme will commence early next year and will entail the issue of free Phenothiazine powder.

Tuberculosis Survey: A survey of bovine tuberculosis was carried out in the island by the Veterinary Department in 1951, the last survey being done by Dr. L. R. Hutson of Antigua in 1944 when 482 cattle were tested over 7 areas with a result of 7.3 positive reactors.

The present survey was undertaken in order to ascertain the true position with regard to bovine tuberculosis in the Island as compared with the 1944 survey and to establish means of eradicating the infection from the Island.

Areas tested: The areas tested (11 in number) were an indicative cross section of the island regarding location, the conditions under which the animals are kept, rainfall, and type of soils, the areas being as follows:

1. Bayfords.
2. Bourkes Estate.
3. Buckleys Estate.
4. Lavington's Estate.
5. Frigate Bay Estate.
6. Douglas Estate.
7. Canada Estate.
8. Hermitage Estate.
9. Brighton Estate.
10. Cunningham Estate.
11. Mansion Estate.

3. *Classes of animals:* A total number of 329 animals were tested within the 11 areas as follows:

TABLE No. 1,

Type of Animal	Area (1)	Area (2)	Area (3)	Area (4)	Area (5)	Area (6)	Area (7)	Area (8)	Area (9)	Area (10)	Area (11)	Total.
Working Cattle	...	38	3	...	...	10	18	21	20	8	14	132
Dairy Cows ...	35	...	7	15	29	7	...	5	8	5	7	118
Dairy Bulls ...	11	...	...	...	...	3	4	...	2	6	...	26
Heifer Calves ...	41	...	1	2	...	...	...	...	1	...	...	45
Bull Calves ...	6	...	...	2	...	...	...	...	...	...	...	8
Totals ...	93	38	11	19	29	20	22	26	31	19	21	329

The two principal estates of importance chosen from the dairying point of view were, *viz.* Bayfords and Frigate Bay Estates.

Bayfords Estate: This estate with an elevation of over 1000 ft. and a milder climate than many of the other estates is situated directly 5 miles North of Basseterre. It was acquired by Government in 1944 to serve as an experimental station and a dairy farm.

There are two herds of dairy cattle on this estate, the larger of the two being a grade Holstein herd from $\frac{1}{2}$—$\frac{3}{8}$ Holstein "creole", the other being a grade Jersey herd which was recently imported from Jamaica. The soil is described as heavy and the rainfall in the region of 70—80 inches.

Frigate Bay Estate: This estate is privately owned and is situated in the South Eastern portion of the Island. It has very extensive grazing facilities for both cattle and small stock, the main grazing area being less than 50 ft. above sea level.

The working cattle on all estates with the exception of area (11) are of a zebu foundation, most of which originated in Nevis. The management of cattle is apparently the same on all estates, and mechanization, tractors, etc. are rapidly replacing the working cattle.

Dairy cattle on estates are kept primarily for the supply of milk. On estates where a considerably large number of cattle are kept, the milk is not only available to the surrounding residents but is also used for outside consumption. Included in this latter category are Bayfords and Frigate Bay Estates.

4. *Nature of test*: The intradermal tuberculine test was employed throughout the survey, and readings were made at the 72nd hour. An injection is made intradermally into the caudal fold at the base of the tail using .05 to .1 cc (25% KOT equivalent).

5. *Results of tests*:

TABLE No. 2.

Number of Animals	*Positive Reaction*	*Negative Reaction*	*% Positive Reaction*
329	7	322	2.1

TABLE No. 3.

RESULTS OF AREAS TESTED.

Area	*No. of Animals*	*Positive*	*Negative*	*% Positive*
1	93	0	93	0.0
2	38	0	38	0.0
3	11	1	10	9.1
4	19	0	19	0.0
5	29	0	29	0.0
6	20	3	17	15.0
7	22	1	21	4.5
8	26	2	24	7.6
9	31	0	31	0.0
10	19	0	19	0.0
11	21	0	21	0.0

TABLE No. 4.

TOTAL NUMBER OF DAIRY TYPE ANIMALS

No.	*Positive*	*Negative*	*% Positive*
197	2	195	1.0

TABLE No. 5

TOTAL NUMBER OF WORKING ANIMALS

No.	*Positive*	*Negative*	*% Positive*
132	5	127	3.8

6. *Conclusions*: The incidence of Tuberculosis in the island was established in 1944, and again confirmed in the present survey. The disease is found in both working and dairy type animals and the percentage of infection was again found to be higher in the working class animals.

There is a considerable drop in the percentage of infection in both working and dairy type animals. This is probably due to—

(*a*) the implementation of the recommendations made following the 1944 survey.

(*b*) less intensive rearing and reduction in the number of animals due to mechanization over the past few years;

(*c*) improved methods of animal husbandry on the estates.

7. *Recommendations for Control Measures*: In view of the small number of animals that have had a positive reaction to the test (7 in number), it is advisable that the reactors should be taken away and slaughtered under inspection so as to salvage the carcass, if passed as fit for food. If it is decided to replace these animals by new pur-

chases, these should only be brought into the herd if negative to the Tuberculin test.

Another test should be made on the entire herd in six (6) months time in order to acertain any new cases, and if present, these should be removed.

The subsequent testing programme should be continued at least once a year.

In conjunction with the recommended measures of control, it is advisable that legislation be introduced prohibiting the introduction of this infection through imported animals that have not passed negative to the Tuberculin test.

Veterinary Legislation.

No Statutory Rules and Orders dealing with veterinary legislation were enacted during 1951. However, the Statutory Rules and Orders in force are directed against the introduction of diseases originating in areas where diseases unknown to the Island exist, and prohibit the importation and exportation of animals into the Island prior to the authorisation of the Veterinary Officer.

Livestock Improvement.

1. *Nevis:* Following the appointment of a Senior Stock Inspector in Nevis as provided in the 1951 Estimates, an Anthrax Vaccination Scheme was started on the Island for the first time as a routine precautionary measure. Areas chosen for vaccination are ones where the disease has been found to be endemic. A bacterin is being used and no charge is made for this service. The following is a summary of the Anthrax Vaccination Scheme:

Area	*Cattle*	*No. of Sheep*	*No. of goats*	*Total*
Brown Hill	—	159	162	321
Bath Village	—	12	114	126
Low Ground	—	64	36	100
Bush Hill	—	9	6	15
Cox Heath	—	28	81	109
Whitehall	50	132	21	203
Totals	50	404	420	874

2. *Anguilla:* The "System of loan" scheme as recommended to Government by the Veterinary Officer in 1950, whereby a number of grade sheep and goats were imported and are being kept at the Valley Station to serve as a breeding herd, was implemented early in 1951.

The scheme provides for the introduction of stud centres, and also responsible stock raisers are given on loan Government owned animals (progenies of herd) for their own use and for the use of neighbouring stock owners.

Some difficulty was experienced in obtaining suitable animals for the Valley and the stud centres, but at the close of 1951, the total number of stock on stud was twenty-one with the following distribution.

A. Valley

1 Grade Zebu bull
1 Grade Holstein bull
1 Berkshire boar
1 Blackheaded Persian ram
2 African black-belly rams
3 British Alpine bucks
1 British Sanaan doe;

B. West End Station

1 Grade Holstein bull
1 African black-belly ram;

C. The Road Station

1 Black-belly ram
1 Blackheaded Persian ram
1 British Alpine buck;

D. Sandy Hill Station

1 Black-belly ram
1 British Alpine buck;

E. East End Station

1 Grade Holstein bull
1 Black-belly ram
1 Blackheaded Persian ram
1 British Alpine buck.

The following are yet needed to complete the quota of animals for the centres:

2 Grade Holstein bulls
2 Blackheaded Persian rams
1 Berkshire boar.

The latter is to replace the existing Berkshire boar (aged) at the Valley Station.

The following are exports figures for 1950 and 1951:

	Cattle	*Sheep*	*Goats*
1950	41	701	444
(1st 3 quarters)	(33)	(443)	(321)
1951	65	645	275

The stock raisers have now begun to appreciate the value of the studs; the increased size of lambs at birth and the greater rapidity of development in many cases being quite obvious. It is rather unfortunate that the bulk of the cows and ewes were mated before the subsidiary stud centres commenced to operate.

It is felt that it is too early at the present to judge the success or otherwise of the scheme if this be based on stud services, but a fair criterion of success may be based on the above assumption 6—8 months after the full quota of animals have been distributed.

Importation of Animals.

The following animals were imported during the year Total 19 head.

Country of Origin	*Cattle*	*Sheep*	*Goats*	*Swine*
Leeward Islands	1	7	—	—
United Kingdon	—	—	3	—
Barbados	—	—	7	—
N. W. I.	—	—	—	1

Exportation of Animals.

The following animals were exported during the year. Total 2,257 head.

Country of Destination	Cattle.	Horses.	Sheep.	Goats.	Swine.	Dogs.	Donkeys	Mules.
Leeward Islands ...	1	...	...	...	...	...	...	...
Trinidad ...	...	...	...	...	1	...	...	...
N.W.I. ...	135	...	969	476	116	...	...	...
Barbados ...	...	44	...	...	...	1	46	27
F.W.I. ...	60	...	220	43	44	...	7	47
Windward Islands ...	...	...	...	...	...	...	20	...

Government Veterinary Service.

Head VII (2)

The revised Presidential Veterinary Service (St. Kitts-Nevis and Anguilla), as approved by the Finance Committee of the Legislative Council took effect as from January 1st, 1951 and the detailed annual expenditure for 1951 was $9,826 which was met from Presidential funds.

The Department has been removed into the new office provided for it at La Guerite as from April 1st, 1951 and provision was made in the draft Estimates for 1951 for a well equipped laboratory and the inclusion of two new posts, those of Stock Inspectors. The duties of these officers are defined as follows:

(*a*) Instruction and help in animal husbandry methods and care of animals in country districts.

(*b*) Simple treatment and first aid for peasant stock.

(*c*) They will be normally stationed in rural districts and will have a good opportunity to gather information of cases of disease and outbreaks not usually reported to the Veterinary Officer.

(*d*) They will assist in disease campaigns, vaccinations and investigational work, which previously it has not been possible to carry out, *viz*: Anthrax, Tuberculosis, Tick Fevers and Tick Eradication.

Clinic and laboratory: A diagnostic service which was maintained throughout the year included blood and fæcal examinations, post mortems, and the examination and identification of parasites. Clinical cases were also attended to both at the surgery and in the field.

Return of Animals Slaughtered at Public Markets.

	Basseterre	Sandy Point	Charlestown	Gingerland	Totals.
Cows ...	252	8	3	22	285
Bulls ...	244	12	69	37	362
Steers ...	103	...	1	...	104
Heifers ...	41	...	8	...	49
Sheep ...	1,794	34	350	210	2,388
Goats ...	995	19	380	214	1,608
Swine ...	562	34	224	160	980
Totals ...	3,991	107	1,035	643	5,776

SLAUGHTERINGS IN NEVIS

	Cattle.	*Sheep.*	*Goats.*	*Swine.*	*Totals.*
1945	153	1,008	1,007	688	2,856
1946	165	1,269	1,478	818	3,730
1947	166	1,241	1,101	785	3,293
1948	197	1,048	1,432	652	3,329
1949	230	898	1,234	474	2,836
1950	203	701	756	343	2,003
1951	140	560	594	384	1,678

COMPARATIVE SLAUGHTERINGS BASSETERRE.

	Cattle.	*Sheep.*	*Goats.*	*Swine.*
1945	608	2,086	860	1,165
1946	567	1,988	878	1,087
1947	541	3,067	1,700	737
1948	745	1,905	1,236	607
1949	690	1,640	1,081	334
1950	427	1,387	793	323
1951	640	1,794	562	995

CONDEMNATIONS, BASSETERRE, 1951.

	Intestines.	*Liver.*	*Lungs.*	*Kidneys.*
Cattle	33	17	14	18
Goats	149	33	6	...
Sheep	447	92	19	...
Swine	15	120	21	281

Staff: The staff of the Veterinary Department now consists of a Veterinary Officer, Senior Stock Inspector, Stock Inspector and a Clerk.

Visitors: Mr. R. Simmons, C.B.E., M.R.C.V.S., Veterinary Adviser to the Secretary of State made a visit of several days to the Island during the year.

A. W. VAUGHAN, M.R.C.V.S., F.R.E.S,
Government Veterinary Officer.